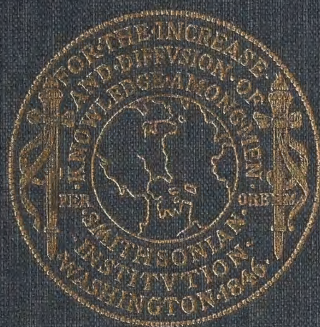




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*NORTH AMERICAN
WILD FLOWERS*

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NORTH AMERICAN WILD FLOWERS

BY

MARY VAUX WALCOTT



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TABLE OF CONTENTS

VOLUME V

NOTE: All sketches are life size. The system used in naming the plants is the American Code of Botanical Nomenclature. Descriptions of the plants illustrated may be found in Gray's New Manual, Britton and Brown's Illustrated Flora, Small's Flora of the Southeastern United States, Rydberg's Flora of the Rocky Mountains, or Abrams' Illustrated Flora of the Pacific Coast.

PLATE

- 321. Flowering Dogwood (flower). *Cornus florida* LINNAEUS
- 322. Flowering Dogwood (fruit). *Cornus florida* LINNAEUS
- 323. Witch-hazel. *Hamamelis virginiana* LINNAEUS
- 324. Maypop. *Passiflora incarnata* LINNAEUS
- 325. Sweetbay. *Magnolia virginiana* LINNAEUS
- 326. Lambkill. *Kalmia angustifolia* LINNAEUS
- 327. Pink Ladyslipper. *Cypripedium acaule* AITON
- 328. Papaw. *Asimina triloba* (LINNAEUS) DUNAL
- 329. Drummond Pitcherplant. *Sarracenia drummondii* CROOM
- 330. Yellow Cucumbertree. *Magnolia cordata* MICHAUX
- 331. Jack-in-the-pulpit. *Arisaema triphyllum* (LINNAEUS) TORREY
- 332. Blueflag Iris. *Iris versicolor* LINNAEUS
- 333. Virginia Stewartia. *Stewartia malachodendron* LINNAEUS
- 334. Wax Trillium. *Trillium album* (MICHAUX) SMALL
- 335. Loblolly Pine. *Pinus taeda* LINNAEUS
- 336. Fringed Gentian. *Gentiana crinita* FROELICH
- 337. White Epidendrum. *Epidendrum nocturnum* JAQUIN
- 338. Bluebead. *Clintonia borealis* (AITON) RAFINESQUE
- 339. Yellow Troutlily. *Erythronium americanum* KER
- 340. Yellow Fringeorchid. *Habenaria ciliaris* (LINNAEUS) ROBERT BROWN
- 341. Whiteflowering Raspberry. *Rubus parviflorus* NUTTALL
- 342. Saltmarsh Rosegentian. *Sabbatia stellaris* PURSH
- 343. Fringed Parnassia. *Parnassia fimbriata* KONIG

344. Bourgeau Rose (flower). *Rosa bourgeauiana* CREPIN
345. Bourgeau Rose (fruit). *Rosa bourgeauiana* CREPIN
346. Purple Pentstemon. *Pentstemon lyallii* GRAY
347. Canada Violet. *Viola canadensis* LINNAEUS
348. Woolly Arnica. *Arnica tomentosa* MACOUN
349. Strawberry-blite. *Chenopodium capitatum* (LINNAEUS) ASCHERSON
350. Western Rattlesnakeplantain. *Peramium decipiens* (HOOKER) PIPER
351. Bur-forget-me-not. *Lappula diffusa* (LEHMANN) GREENE
352. Alpine Forget-me-not. *Myosotis alpestris* SCHMIDT
353. White Globeflower. *Trollius albiflorus* (GRAY) RYDBERG
354. Perennial Gaillardia. *Gaillardia aristata* PURSH
355. Ptarmiganberry. *Arctous alpina* (LINNAEUS) NIEDENZU
356. Hooded Ladies-tresses. *Ibidium strictum* (RYDBERG) HOUSE
357. Yellow Pentstemon. *Pentstemon confertus* DOUGLAS
358. Camas. *Quamasia quamash* (PURSH) COVILLE
359. Moss Forget-me-not. *Eritrichum elongatum* (RYDBERG) W. F. WIGHT
360. Western Pipsissewa. *Chimaphila umbellata* var. *occidentalis* (RYDBERG) BLAKE
361. Red Comandra. *Comandra livida* RICHARDSON
362. Pale Strawberry. *Fragaria glauca* (WATSON) RYDBERG
363. Redstem Saxifrage. *Saxifraga lyallii* ENGLER
364. Yellow Dryad (flower). *Dryas drummondii* RICHARDSON
365. Yellow Dryad (fruit). *Dryas drummondii* RICHARDSON
366. Heliotrope Valerian. *Valeriana sitchensis* BONGARD
367. Moss Campion. *Silene acaulis* LINNAEUS
368. Alpine Harebell. *Campanula lasiocarpa* CHAMISSE
369. Harebell. *Campanula rotundifolia* LINNAEUS
370. Red Willowweed. *Epilobium latifolium* LINNAEUS
371. Northern Anemone. *Anemone parviflora* MICHAUX
372. Alberta Paintbrush. *Castilleja miniata* BENTHAM
373. Elephanthead. *Pedicularis groenlandica* RETZ

374. Lewis Monkeyflower. *Mimulus lewisii* PURSH
375. Alpine Monkeyflower. *Mimulus caespitosus* GREENE
376. Aleutian Fleabane. *Erigeron unalaschensis* (DE CANDOLLE) RYDBERG
377. Whitebark Pine. *Pinus albicaulis* ENGELMANN
378. Engelmann Spruce. *Picea engelmanni* (PARRY) ENGELMANN
379. Creeping Juniper. *Juniperus horizontalis* MOENCH
380. Drummond Willow. *Salix drummondiana* BARRATT
381. Lyall Larch. *Larix lyallii* PARLATORE
382. Crowberry. *Empetrum nigrum* LINNAEUS
383. Siberian Onion. *Allium sibericum* LINNAEUS
384. Slim Larkspur. *Delphinium depauperatum* NUTTALL
385. Arrowleaf Groundsel. *Senecia triangularis* HOOKER
386. Wright Pentstemon. *Pentstemon wrightii* HOOKER
387. White Dawnrose. *Pachyloplus marginatus* (NUTTALL) RYDBERG
388. Evening-primrose. *Pachyloplus hirsutus* RYDBERG
389. Clusterlily. *Hookera pauciflora* (TORREY) TIDESTROM
390. California Pitcherplant. *Cbrysamphora californica* (TORREY) GREENE
391. Scarlet Mariposa. *Calochortus kennedyi* PORTER
392. Bushpoppy. *Dendromecon rigidum* BENTHAM
393. Mexican Poppy. *Eschscholtzia mexicana* GREENE
394. Fire Pentstemon. *Pentstemon eatonii* GRAY
395. Cardinal Monkeyflower. *Mimulus cardinalis* DOUGLAS
396. Ocotillo. *Fouquieria splendens* ENGELMANN
397. Yucca. *Yucca baileyi* WOOTON AND STANDLEY
398. Scarlet Globe-mallow. *Sphaeralcea grossulariaefolia* (HOOKER AND ARNOTT) RYDBERG
399. Quill-leaf Tillandsia. *Tillandsia fasciculata* SWARTZ
400. Catesby Pitcherplant. *Sarracenia catesbaei* ELLIOTT

FLOWERING DOGWOOD

Cornus florida Linnaeus

Dogwood grows abundantly in the favored regions which it inhabits. When the tree is in bloom in early spring, the profuse blossoms appear like a cloud of great snowflakes falling through the interlaced branches. The large flower buds are well developed before the leaves fall in autumn. When warmer days have come the four small bracts, which protect the buds, expand into the white petal-like organs which surround the yellow-green florets clustered in the center. The dogwood tree grows to a maximum height of twenty feet with a trunk sometimes eighteen inches in diameter. Its bark is gray and cracked into squares, and the wood is close-grained and heavy. Its firm and even texture, and its quality of drying without cracking, makes it a favorite wood for wedges in lumber camps and for spindles and bobbins in cotton mills. Dogwood is the State flower of Virginia, and no more beautiful and suitable plant could have been chosen. Occasionally the bracts are pink. Both color-types are extensively cultivated, thriving best in a moderately acid soil.

Flowering dogwood is found from Florida and Texas northward to southern Maine, Ontario, and Minnesota, and related species occur in the Pacific Coast States, and in Japan, Korea, and China.

The sketch was made in Washington, District of Columbia.

FLOWERING DOGWOOD

Cornus florida Linnaeus

FRUIT OF PLATE 321

As autumn approaches, the leaves of the dogwood assume gorgeous tints of crimson and yellow, and at the same season the clusters of brilliant red berries reach their maturity. Robins and many other birds are especially fond of the juicy though bitter berries, and frequently they eat them all before winter comes. The seeds are stored by small mammals for winter use. Sometimes the fruits remain on the tree until far into the winter. In late autumn, in some places, they are so abundant as to give a red color to the woods.

Dogwood is found from Florida to Texas, and northward to southern Maine, Ontario, and Minnesota.

The branch illustrated grew near Fairfax, Virginia, a region where the berries are exceptionally large and well developed.

PLATE 322

WITCH-HAZEL

Hamamelis virginiana Linnaeus

In late autumn, when the leaves have nearly all fallen, and all other flowers long since have faded, the witch-hazel comes into bloom.

For now the gray witch-hazel gives her flowers,
Her tiny blooms, that sweeten all the air,
To greet November's sun and chilly showers,
With something dainty, hardy, sweet and fair.
Elusive, drifting, cool and vaguely sweet,
It gives the day a meaning all its own,
November's incense, as she comes to meet
The winter, when all flower scents have flown.

L. CLAUDE.

The dainty pale yellow flowers sprawl from the axils of the yellow tinted leaves, and sometimes open even after the last leaf has fallen. The fruits do not ripen until almost a year has passed. Then the hard dry seeds are shot from the slowly splitting capsules to a distance of many yards from the parent plant. Witch-hazel was named by the early colonists from a fancied resemblance to another plant known to them in western Europe, and much of the folk-lore connected with the latter was transferred with the name. The twigs are supposed to possess occult powers when in the hands of persons capable of interpreting the movements, and to reveal the presence of water or mineral deposits. Witch-hazel is used in medicine, because of the soothing properties of the distilled extract.

The witch-hazels belong to a small plant family distantly related to the roses. The species here described is found from Florida northward to Nova Scotia, Ontario, and Minnesota. A relative that grows from Louisiana to Missouri blooms in earliest spring.

The specimens painted grew near Washington, District of Columbia.

MAYPOP

Passiflora incarnata Linnaeus

The Passionflower Family of three hundred and fifty species is exclusively American, and nearly all the species are inhabitants of the tropics. Only a few are found in the United States and of these the maypop is hardy as far north as Virginia and even farther northward. It is a vigorous vine, often growing thirty feet in length, with many tendrils and rich green leaves. The peculiarly scented flowers attract universal attention by their complicated structure and coloring. The various organs of the flower suggested to the devout Spaniards the objects associated with the passion of our Lord, and the Latin name was given in consequence. The fruit is as large as a hen's egg and pale yellow. Its smooth rind is very tough, and the many and large seeds are surrounded by a juicy sweet pulp, which is eaten by children. Some of the tropical passionflowers are highly esteemed for their edible fruits of superior flavor. The common name of the plant refers to the loud popping noise that it makes when squeezed until it bursts. Tennessee has adopted it as the State flower.

The maypop grows from Florida to Texas and northward to Virginia, southern Indiana, and Missouri. It is easily cultivated, but is not safe to introduce into small gardens, because of its spreading tendencies.

The sketch was made from specimens secured near Savannah, Georgia.

SWEETBAY

Magnolia virginiana Linnaeus

Sweetbay is found in swampy woods or deep swamps where it is usually a shrub, although sometimes attaining the size of a tree. The leathery leaves are silvery beneath, and their upper surface is a rich dark green. The solitary flowers are borne at the tips of the branches, where the creamy petals contrast pleasingly with the deeply colored foliage. Their delicious and pervasive odor is their greatest attraction. Long after the flowers have passed they are succeeded by a cone-shaped fruit in which, when fully ripe, the separate parts split open, and the seeds with their bright red fleshy covering dangle by slender threads. When the thread finally breaks, the seeds are blown by the wind to substantial distances. While beavers were abundant they felled the trunks of these trees for building their dams, and they were so fond of the bark that it was employed frequently to bait beaver traps. Sweetbay is often called beaver tree.

This striking member of the Magnolia Family is found around the Gulf of Mexico from Florida to Texas and Arkansas, and northward along the Atlantic coastal plain to Pennsylvania and Massachusetts. It always grows in the most acid of soils, and thrives in cultivation only if planted in such soils.

It grows plentifully in the neighborhood of Washington, District of Columbia, where this specimen was found.

LAMBKILL

Kalmia angustifolia Linnaeus

Lambkill, although closely related to mountain laurel, is conspicuously different in its low stature and smaller but more brightly colored flowers. It is a beautiful member of the Heath Family. The shrub grows from six inches to three feet in height, and where it is plentiful, colors the hillsides or swamps with its rich crimson. The plant, as its popular name intimates, is very poisonous to stock, which sometimes eat the young leaves. Its poisonous properties were well known to the Indians who inhabited the Eastern States.

This species has a wide range. It is found from Georgia to Michigan and northward to Newfoundland and Hudson Bay.

The sketch was made from specimens collected near Washington, District of Columbia.

PINK LADYSLIPPER

Cypripedium acaule Aiton

Pink ladyslipper, often called moccasin-flower, is always a delight to the flower lover, for it seems like some exotic visitor. In fact it is not surpassed in beauty by many of the choicest orchids of the tropics. It adapts itself readily to cultivation in a wild garden if suitable acid soil is provided, for it is one of the most acid-loving of all our native plants. It reappears year after year when once established. The term *acaule*, meaning "stemless," applies to the leaves and not to the flower, for the latter grows at the top of a slender stem springing up between two broad green leaves which often lie close against the soil. It is the largest flower produced by any of our native northern orchids. Bumblebees are attracted to the nectar and enter the pouch, at the top of which it is secreted. Frequently, however, they find escape difficult, sometimes even biting their way out to freedom. Those which manage to emerge through the openings beside the anthers rub off some of the sticky pollen, and without knowing it, carry this to another flower and leave it on the stigma there, thus bringing about cross-pollination and the production of fertile seed.

Pink ladyslipper is found from the mountains of Alabama northward to Newfoundland and westward to Manitoba.

The flowers sketched grew near Washington, District of Columbia.

PAPAW

Asimina triloba (Linnaeus) Dunal

The papaw is a tall shrub or small tree from ten to forty-five feet in height. It grows in rich ground along river bottoms, where owing to the soft and unobtrusive coloring of the flowers, it is easily overlooked when in bloom. The flowers appear earlier than the leaves, along with those of dogwood and redbud, but the fruits do not ripen until October. They grow singly or in sparse bunches, and are of the size and shape of short stout bananas. When ripe, they are colored deep yellow. Opinions differ as to their palatability, but many persons enjoy their sweet aromatic flavor. The old French settlers called them "assimin," a name derived from that used in a dialect of the Algonquian Indians, and the genus name is derived from this term. The papaw belongs to the tropical Anona Family, but the eight species of *Asimina* are all native in the southern United States.

This specimen grew on Plummers Island, Maryland, near Washington, District of Columbia.

Papaw ranges from Florida westward to Texas and Kansas and northward to New York, southern Ontario, and Michigan.

DRUMMOND PITCHERPLANT

Sarracenia drummondii Croom

The thrill of finding a pitcherplant in bloom is a rare experience, for the petals of these plants are short lived. The umbrella left behind is a curious object, but it lacks the distinctive beauty of the perfect flower, with its brilliant petals. Many insects are attracted to the treacherous pitchers and are lured to their death. Of all our wild flowers, pitcherplants are the most fascinating from the standpoint of their relations to insects, excepting only the orchids. They yield readily to cultivation in a cool greenhouse, when given the proper acid soil, and abundant moisture about their roots, approximating natural conditions. This may be accomplished by the use of a double pot, with peat moss in the interspace.

Drummond Pitcherplant is one of the largest of the several species of the genus, its pitchers reaching a height of three or even four feet. It is native in a rather restricted area along the Gulf Coast, from southwestern Georgia and western Florida to southern Mississippi.

The plant painted was brought into bloom in the greenhouses of the Department of Agriculture in Washington.

YELLOW CUCUMBERTREE

Magnolia cordata Michaux

Yellow cucumbertree is one of the rare members of the Magnolia Family, its range being confined to the State of Georgia. This species has had a peculiar history, having been discovered by Michaux in the course of his famous exploration trips in this country in the latter part of the eighteenth century, then being lost to science for a long period, and rediscovered in the wild in recent years.

A fine specimen on the grounds of the Department of Agriculture in Washington always draws much attention, especially when adorned with its showy blossoms. The flowers resemble somewhat those of the tuliptree, which indeed is a close relative, but the cucumbertree flowers earlier in the season.

The specimen sketched was given me by the Honorable Henry C. Wallace, at that time Secretary of Agriculture.

JACK-IN-THE-PULPIT

Arisaema triphyllum (Linnaeus) Torrey

Jack-in-the-pulpit, sometimes called Indian turnip, comes into bloom in spring along with violets and columbines. It thrives in rich moist woods, and in favorable surroundings develops into a plant two feet tall. Some spathes contain staminate flowers and others pistillate flowers. In some cases both staminate and pistillate flowers are found in the same plant, the latter growing above the former, at the base of the club. The fruit, which consists of a ball of bright red berries, ripens in September. The bulblike corm, sunk deep in the ground, is very pungent when tasted raw, causing the mouth and tongue to burn for hours afterward. It was used by the Indians as food, however, after baking or boiling to remove the irritating substances.

The Arum family, to which Jack-in-the-pulpit belongs, is composed chiefly of tropical plants but includes the skunkcabbage, wild calla, greendragon, and goldenclub, as well as the cultivated calla.

Jack-in-the-pulpit is found from Florida to Kansas and northward to Nova Scotia and Minnesota. Our specimen grew at Bryn Mawr, Pennsylvania.

Jack-in-the-pulpit preaches today,
Under the green trees, just over the way;
Squirrel and song sparrow high on their perch,
Hear the sweet lily-bells ringing to church.

Come hear what his reverence rises to say,
In his low painted pulpit, this calm Sabbath day.
Fair is the canopy over him seen
Penciled by nature's hand, black, brown and green.
Green is his surplice, green are his bands;
In his queer little pulpit, the little priest stands.

CLARA SMITH

BLUEFLAG IRIS

Iris versicolor Linnaeus

Blueflag iris loves swamps and wet meadows because it requires ample moisture in order to flourish. Its blue flowers attract bees and other insects; these are necessary to the formation of viable seeds, for the shape and arrangement of the petals are such as to make self pollination impossible. The thick root is considered poisonous, and although this is not fully substantiated, the foliage evidently contains a repellent, for cattle never eat it. The irises derive their name from the Greek word meaning rainbow.

Blueflag iris has a wide range, growing from the mountains of North Carolina northward to Newfoundland. Closely related species also occur in adjoining territory.

The specimen sketched grew near Washington, District of Columbia.

VIRGINIA STEWARTIA

Stewartia malachodendron Linnaeus

The few species of *stewartia* found in the southeastern United States and eastern Asia are all rare and local plants, familiar to few botanists. Their beauty deserves for them a wider acquaintance. This *stewartia* is a shrub growing from six to twelve feet high, and is usually found in low woods. The unusual coloring of the stamens, especially the anthers, gives the flowers a very remarkable appearance, and the leaves in autumn are colored brilliantly with red and orange. The genus name was given in honor of John Stuart, Earl of Bute, a patron of botany, but Linnaeus adopted the name in the form *Stewartia*. It belongs to the Tea Family.

Stewartia ranges from Florida to Virginia and west to Louisiana.

The sketch was made from a specimen gathered on Ladys Island near Beaufort, South Carolina.

WAX TRILLIUM

Trillium album (Michaux) Small

Wax trillium is one of the trilliums which is little known and seldom seen, but for that very reason, it is of greater interest when found. Moist woods and thickets are its favorite habitat. Since it thrives in cultivation in a wild garden, as do most of its relatives, it may be enjoyed each succeeding spring. It may be a color form of the well-known purple trillium (*Trillium erectum*). It occurs as isolated plants throughout the range of that species, from the mountains of Georgia and Alabama to Nova Scotia and Manitoba. The trilliums belong to the Lily Family, and the numerous species occurring in North America are distributed from coast to coast.

The specimen sketched was obtained from a wild garden near Chestnut Hill, Massachusetts.

LOBLOLLY PINE

Pinus taeda Linnaeus

We are so apt to consider the various kinds of pine trees as similar and uninteresting, that when a loblolly pine is investigated in its blooming season in earliest spring, its curious flowers shedding their clouds of dustlike pollen are an unexpected novelty. Produced plentifully at the tips of the twigs, they are so abundant, as to give a brownish tinge to the whole tree. The embryonic cones are inconspicuous at this season, reaching their full size only at the end of autumn, but they enlarge after pollination has occurred. Loblolly pine is a large forest tree occasionally reaching a height of one hundred and fifty feet, with a trunk five feet in diameter. It springs up in clearings or in old fields and is often called oldfield pine. The long leaves are usually in threes. The wood is coarse-grained and brittle.

Loblolly pine ranges from Florida north to Delaware and New Jersey and west to Arkansas, Oklahoma, and Texas.

The sketch was made at Beaufort, South Carolina.

FRINGED GENTIAN

Gentiana crinita Froelich

Fringed gentian is a plant always surrounded with sentiment, which is reflected in Bryant's lines:

Thou waitest late, and comest alone
When woods are bare and birds have flown,
And frosts and shortening days portend
The aged year is near his end.

Then doth thy sweet and quiet eye
Look through its fringes to the sky,
Blue—blue—as if that sky let fall
A flower from its cerulean wall.

In some years the fringed gentian may be found growing plentifully in a given locality, but the next season it may be sought in vain in the same spot. The fact that the plant is a biennial, flowering only in its second season, sometimes accounts for this, although in some places other individuals come into bloom in the in-between years. The seeds, although numerous, are very small and light and easily washed away by rain or blown about by the wind. There are seven hundred members of the Gentian Family, most of them found in temperate and arctic regions, although many others grow in the higher mountains of tropical countries. The name is derived from that of King Gentius of Illyria.

Fringed gentian has a wide range, from the mountains of Georgia to Quebec and South Dakota.

The flowers sketched were obtained near Mount Kisco, New York.

WHITE EPIDENDRUM

Epidendrum nocturnum Jaquin

In the deep cypress swamps of southern Florida the white epidendrum, known locally as bark orchid, is of frequent occurrence, although sometimes it is perched so high upon the tree that it is difficult to discover. The very minute seeds, carried by the breeze to some branch, germinate and develop slowly, if the conditions are exactly right, into tiny plants which require several years to reach maturity. The plants cling tightly by their thick, fleshy roots to the branches. The white flowers of this epidendrum, although not so showy as those of some of its tropical relatives, are very beautiful, and like the blossoms of most orchids, they last for a long time after they have opened. Their fragrance, which is especially noticeable at night, is attractive to moths, which feed on the nectar and unwittingly accomplish cross-pollination in carrying the pollen from flower to flower.

The dense hammocks of the lower Florida wilds bordering Coot Bay and the ramifying channels leading to and from it in Monroe County contain probably the finest development of epiphytic plants in the United States. Here many species of orchids, bromeliads, and ferns, in endless number, drape and festoon the branches to form a veritable hanging garden.

This specimen came from Coot Bay, Florida. The plant is rather generally distributed in the West Indies and elsewhere in tropical America.

BLUEBEAD

Clintonia borealis (Aiton) Rafinesque

Bluebead is found in cool, mossy, shady woods, where its handsome large green leaves draw attention to the greenish-yellow bell-shaped flowers which are borne on a sturdy stem well above them. The large dark blue fleshy fruits, to which the common name refers, are more conspicuous than the flowers. They are held upright on their stiff stems, and are familiar to every nature lover who visits the northern woods in late summer. The Clintonias were named for DeWitt Clinton, Governor of New York, who was an enthusiastic botanist. They belong to the Lily Family.

This species has a wide range, occurring from the high mountains of North Carolina westward to Wisconsin and northward to Newfoundland and Minnesota.

The plant sketched was obtained near Canandaigua, New York.

YELLOW TROUTLILY

Erythronium americanum Ker

Yellow troutlily is one of our early spring flowers, making its appearance at the same time as bloodroot and toothwort. The lush leaves are as fresh and lovely as the blossoms. These almost close at night, and open only sluggishly in daylight, failing to revive when picked. The shady meadows bordering streams are their favored habitat, and here mats of the leaves, sometimes acres in extent, often closely carpet the ground. Only a few individuals bear flowers, however, for like many other wild flowers several years are necessary for its bulbs to mature. The troutlilies belong to the Lily Family, and the approved common name, which was coined by the famous naturalist, John Burroughs, emphasizes this fact. The name used in some books, dogtooth violet, is highly inappropriate, for the flower does not bear the slightest resemblance to a violet.

Yellow troutlily has a wide range, from Florida to Arkansas, and north to Minnesota, Ontario, and Nova Scotia.

The specimens sketched grew near Washington, District of Columbia.

YELLOW FRINGEORCHID

Habenaria ciliaris (Linnaeus) Robert Brown

Yellow fringeorchid is one of our showy representatives of the Orchid Family, and its only rival in brilliance of coloration in its accustomed habitat is the cardinalflower. The accepted common name is somewhat inappropriate, however, for its color is really of a decidedly orange hue. Growing two or three feet in height, in a ferny meadow or wet bog, or on the banks of a quiet stream, its bright orange color beckons the long-tongued butterflies and moths to visit it. In twilight it is easily seen by the large moths which hover over it; these are often mistaken for humming birds through the similarity in their manner of flight. It is a sturdy and elegant plant, and to find it growing in perfect development is a joy never to be forgotten.

Yellow fringeorchid has a wide range, from Florida to Texas and northward to Vermont, Ontario, and Michigan. It can be cultivated only in highly acid soil.

The sketch was made from plants gathered near Bridgeport, Connecticut.

WHITEFLOWERING RASPBERRY

Rubus parviflorus Nuttall

The slightly crinkled petals of the whiteflowering raspberry are conspicuous against their background of rich green maple-shaped leaves. It is fully as attractive as its eastern relative, the flowering raspberry, which bears purple flowers. The whiteflowering raspberry grows from two to six feet tall, the lower part of the stems being brown and woody. It frequents rich woods often at high altitudes in the mountains. The berries are disappointing to the taste, and full of small seeds. The plant belongs to the Rose Family, its range extending from extreme northern Mexico to California and Alaska, and eastward to Michigan and westernmost Ontario.

In the vicinity of Glacier, British Columbia, where the sketch was made, and all through the Selkirk Mountains, it is especially abundant. This specimen was obtained at an altitude of 3,500 feet.

SALTMARSH ROSEGENTIAN

Sabbatia stellaris Pursh

The delicate star-shaped flowers of marsh rosegentian are distributed plentifully in salt marshes along the Atlantic coast, and acres of the flowers may be seen in favored places in midsummer. The color varies from white to deep pink. The contrast between the color of the petals and the carmine-bordered yellow eye is most pleasing. Many other *Sabbatias* grow in the eastern half of the United States, especially southward. Some of them have even larger and brighter flowers than the saltmarsh rosegentian. The *Sabbatias* belong to the Gentian Family.

Because of its preference for salt, this plant does not extend inland, but it spreads along the coast from Florida to Louisiana and Maine. The flowers sketched were found near Bridgeport, Connecticut.

FRINGED PARNASSIA

Parnassia fimbriata Konig

Fringed parnassia is a hardy and beautiful plant, closely related to the Saxifrage Family. The dainty flower stalks spring from a cluster of smooth green leaves, each stem supporting a single creamy white flower about an inch across, and the delicate fringes along the sides of the petals are a feature seldom found in flowers. The plants grow plentifully along rivulets, and on moist banks irrigated by snow-water. The size of the plant varies greatly with altitude. In low-lying valleys the flower stems may be two feet tall, but on higher mountain slopes only an inch or two in length.

Fringed parnassia is distributed from California and New Mexico northward to Alberta and Alaska.

The plant sketched grew near Lake O'Hara, ten miles from Hector, British Columbia, at an altitude of 6,000 feet.

BOURGEAU ROSE

Rosa bourgeauiana Crepin

If you happen to journey in June to the upper Columbia River Valley, British Columbia, you will be rewarded by seeing the wild roses in full bloom. In no other part of the country where we traveled, except near Banff, do they show such marvelous color and size, or grow so plentifully. Their delicious odor is everywhere. The sturdy bushes frequently grow to a height of four feet or more. Their woody brown stems are well protected by many slender down-curved spines. Four States have chosen the rose as their official flower—Iowa, North Dakota, New York, and Georgia, but the particular rose so honored is not always designated. Georgia has chosen the cherokee rose, introduced long ago from China.

The Bourgeau rose is found from Colorado and Montana northward to British Columbia and Mackenzie, and rarely eastward to Ontario.

The plant sketched was obtained near Lake Minnewonka, ten miles from Banff, Alberta, Canada, at an altitude of 4,500 feet.

BOURGEAU ROSE

Rosa bourgeauiana Crepin

FRUIT OF PLATE 344

The beautiful flowers of the Bourgeau rose are followed by the conspicuous red fruits or hips. They have a pleasant flavor, but are irritating to the human throat. They are a favorite food of many birds and small mammals. Formerly, before so many delicious fruits were obtainable, rose hips were used to fill tarts, and in northern Europe a kind of fruit soup was made from them. In the United States they were used in jelly by those seeking novelties of this sort.

The Bourgeau rose is found from Colorado and Montana, northward to British Columbia, Alberta and Mackenzie, and eastward to Ontario.

Near Sinclair Canyon, Alberta, where this specimen was gathered, they grew in large quantities at an altitude of 3,000 feet.

PLATE 345

PURPLE PENTSTEMON

Pentstemon lyallii Gray

Purple pentstemon is one of the finest of all the pentstemons, especially when it finds a congenial situation. In disintegrated limestone it thrives luxuriantly, often forming low dense clumps two or three feet in diameter and completely covered with large purple blossoms which resemble those of foxglove, one of its relatives. The flowers, borne at the ends of the stems, are so heavy that they weigh the branches to the ground. On slopes above timberline where it is subjected to severe climatic conditions it is very beautiful in contrast with gray rocks, especially when growing in rock crevices.

Purple pentstemon belongs to the Figwort Family and ranges from Idaho and Montana northward to Alberta and British Columbia.

We gathered them in perfection in Sinclair Canyon, near Radium Hot Springs, British Columbia, at an altitude of 3,000 feet.

CANADA VIOLET

Viola canadensis Linnaeus

Canada violet is easily recognized, because its habit of growth is different from that of most members of the Violet Family. The plants grow to a height of six inches or even two feet in favored situations, and the pale, rather inconspicuous, slightly scented flowers spring from the axils of the leaves. The Canada violet prefers moist shady places in the proximity of pines and firs, but it grows also in alpine meadows. Its flowering season is longer than that of most violets, lasting well into the summer.

The wide range of Canada violet makes it a familiar plant to many flower lovers. It occurs from the mountains of Alabama and Arizona northward to Newfoundland and Alaska.

The sketch was made at Lake Louise, Alberta, Canada, where the plant was found at an altitude of 5,000 feet.

WOOLLY ARNICA

Arnica tomentosa Macoun

Woolly arnica is one of many species of this genus, which belongs to the Aster Family. It is a graceful perennial with large bright yellow flower heads produced at the ends of the stems. Like other parts of the plant the leaves are conspicuously woolly, hence the appropriateness of the name given to it. We found this arnica growing high on the mountainside where it maintained a precarious foot-hold in shallow soil in crevices of limestone rocks.

This species has a narrow range, occurring only in Alberta and British Columbia.

The plant illustrated was gathered in the valley of the Siffleur River, British Columbia, at an altitude of 5,000 feet.

STRAWBERRY-BLITE

Chenopodium capitatum (Linnaeus) Ascherson

The flowers of strawberry-blite are small, greenish, and inconspicuous. The plant is showy, however, in late summer when in fruit. It produces quantities of globular, pulpy, berrylike fruits crowded on the stems, which appear too weak to carry such a heavy load. It is sometimes called Indian strawberry, although it is not at all related to the true strawberries, being a member of the Goosefoot Family. The fruit is not eaten, but the Indians used the red juice of the fruit as a dye.

This plant has a wide range, occurring from New Jersey northward to Nova Scotia and westward to Illinois, California, and Alaska. It is found also in Europe and Asia.

The specimens painted were gathered by the side of the motor road in the Bow Valley between Banff and Lake Louise, Alberta, at an altitude of 4,000 feet.

WESTERN RATTLESNAKEPLANTAIN

Peramium decipiens (Hooker) Piper

The common name applied to this plant refers to the resemblance of the beautiful white veinings of the leaves to the markings on a rattlesnake. It seems a pity to be obliged to include the word "plantain" in its name, however, for it is not in any way related to the weeds to which this name applies, being instead a delicate orchid. The technical name of the genus is not used in all books, some authors preferring to substitute *Epipactis* or *Goodyera*. The rosette of leaves is more conspicuous than the flowers, which are borne, usually, on one side of a stout stem. The plant loves decaying wood, and it grows frequently under evergreen trees where the air is cool and damp, though the soil is dry.

Western rattlesnakeplantain occurs from the mountains of New Mexico and California northward to British Columbia and sparingly eastward to the Great Lakes region, and even to northern Maine and Quebec.

We found it in the Selkirk Mountains twenty miles beyond Glacier, British Columbia, at an altitude of 3,000 feet.

BUR-FORGET-ME-NOT

Lappula diffusa (Lehmann) Greene

Bur-forget-me-not is a lovely plant growing two feet in height and bearing a profusion of delicately scented blue flowers. When it was in fruit we were disillusioned as to its character, for we found that each flower produced a small round bur covered with prickles which attached itself to any passing object and was difficult to loosen. The plant is especially plentiful in the tracks of old snow slides, for it delights in the cool moisture of slopes where much snow has melted. Sometimes the flowers are white.

Bur-forget-me-not ranges from Colorado to California and northward to Alberta and British Columbia.

We found the plant growing near Lake Louise, Alberta, Canada, at an altitude of 5,000 feet.

ALPINE FORGET-ME-NOT

Myosotis alpestris Schmidt

Alpine forget-me-not has lovely blue, slightly scented flowers, densely clustered, with deep yellow centers. It prefers moist alpine slopes near timberline, and here it is found in perfection, coming into flower throughout the summer as the snow recedes. Like many alpine plants, it has shorter stems when it grows at higher elevations on the mountain sides, and there it may properly be described as a cluster of blue flowers surrounded by a rosette of green hairy leaves.

The forget-me-nots belong to the Borage Family. This one has a comparatively narrow range in North America, occurring from Colorado to Alberta and Alaska. It is found also in Europe and Asia.

In the region near Baker Lake, ten miles from Lake Louise, Alberta, where these flowers were gathered, it grows in perfection at an altitude of 6,500 feet.

WHITE GLOBEFLOWER

Trollius albiflorus (Gray) Rydberg

Alpine meadows, the wet margins of streams, and the edges of melting snow patches are the places most frequented by the white globeflower. It blooms so early in the season that it is usually in fruit before the eastern visitor arrives, though often retarded plants may be found in blossom even at the end of the summer, pushing through a thin sheet of ice at the border of an obstinate snowbank. The globeflower belongs to the Buttercup Family, and looks much like some of its cousins of that group, the anemones.

The range of this species is from Colorado to Washington, Alberta, and British Columbia.

We gathered it in the meadows near Mount Assiniboine, fifty miles south of Banff, Alberta, at an altitude of 6,500 feet.

PERENNIAL GAILLARDIA

Gaillardia aristata Pursh

Perennial gaillardia is one of the gaudiest of the mountain flowers, and in its abundance and display of color recalls the familiar black-eyed-susan of eastern pastures. We often found the flowerheads so large and beautiful that the plant seems to have no need of improvement by the hand of man, although this gaillardia was brought into cultivation long ago, and is now a well-known garden plant all over the world. It prefers dry slopes and many fine flowerheads are often borne on a single plant. It belongs to the great Aster Family. This and other species of gaillardia are often seen in gardens.

Perennial gaillardia ranges from Colorado and South Dakota to Oregon and British Columbia.

This specimen grew near Emerald Lake, seven miles from Field, British Columbia, at an altitude of 6,000 feet.

PTARMIGANBERRY

Arctous alpina (Linnaeus) Niedenzu

This dwarf shrub of the Heath Family is a colorful plant in autumn when its leaves turn crimson and it is decorated with red berries. Growing flat on the ground, it makes brilliant patches of color under the willows, alders, and scrub pines which form open thickets over the shaly flats deposited by glacial streams. By some authorities the red-berried form here pictured is separated as a variety from the more widespread black-berried one. Under the name *Arctous erythrocarpa* or *Arctous alpina rubra*, the ptarmiganberry grows at high altitudes in widely separated districts of Maine, New Hampshire, and Greenland, and from British Columbia to Alaska. It occurs also in Europe and Asia.

The plant was especially beautiful in Douglas Canyon Valley, which leads from Red Deer River Valley, fifty miles by trail north of Lake Louise, Alberta, where we found it at an altitude of 6,000 feet.

HOODED LADIES-TRESSES

Ibidium strictum (Rydberg) House

Hooded ladies-tresses is later in blooming than most of our native orchids, and often delays flowering until the end of summer. It grows in moist or swampy places, in low meadows or near the borders of streams. It is a very sweet-scented plant and is often abundant where congenial soil and moisture conditions exist. Cross-pollination of the flowers is insured by their intricate structure, and bees carry the pollen from one flower to another. Darwin's interesting observations on this process have been recorded in great detail, and he and Asa Gray had an extensive correspondence upon the subject.

The plant has a wide range, extending in one form or another from Pennsylvania to Newfoundland, New Mexico, California, and Alaska. Perhaps more than one species is included in this citation of range, as those from the east and from the west look rather dissimilar.

The flowers sketched were obtained in the Siffleur River Valley, fifty miles by trail north of Lake Louise, Alberta, at an altitude of 4,500 feet.

YELLOW PENTSTEMON

Pentstemon confertus Douglas

Yellow pentstemon is a graceful member of the Figwort Family. In congenial surroundings it is very plentiful, although inconspicuous on account of the pale coloring of its flowers, which are grouped in several whorls along the stem. Altitude affects the plant greatly; in the lower valleys it may grow to a height of two feet, but at a high elevation the stem is only a few inches tall. Yellow flowers are rare among the pentstemons, which are represented in the Rocky Mountains by a number of species, most of them with white or purple blossoms.

This pentstemon extends from Wyoming to California, and northward to Alberta and British Columbia.

The plant sketched grew in the valley of Cataract Creek near Hector, British Columbia, at an altitude of 6,000 feet.

CAMAS

Quamasia quamash (Pursh) Coville

Camas is a relative of the lilies and hyacinths. It grows in large quantities in open meadows or boggy fields. When in bloom in early spring a camas meadow appears at a distance like a blue lake. The bulbs were used extensively as food by the northwestern Indians. When boiled they resemble potatoes in flavor. If baked over hot stones enclosed in a covering of grass for thirty-six hours they have a delicious chestnut flavor. Father de Smet in his "Oregon Missions" terms the bulb "the queen root of this clime."

This lovely camas ranges from Utah, Montana, and northern California to British Columbia.

The sketch was made from plants growing at the east entrance to Glacier National Park, Montana.

MOSS FORGET-ME-NOT

Eritrichum elongatum (Rydberg) W. F. Wight

This member of the Borage Family, whose flowers look so much like a true forget-me-not, is one of the plants that have adapted themselves to severe alpine conditions. Growing above timberline where there is little shelter from storm and wind, it hugs the ground, its woody root firmly inserted in some crevice, where barely sufficient soil has collected to permit its growth. Its flowers nestle in a mass of gray moss-like leaves, whose somber coloring enhances the rare blue of the flowers.

Moss forget-me-not ranges through the Rocky Mountains from New Mexico to Montana and Oregon.

The specimen painted was found on a trail that carried us away from the lower valleys near Apollonaris Spring in Yellowstone National Park, Montana.

WESTERN PIPSISSEWA

Chimaphila umbellata var. *occidentalis* (Rydberg) Blake

Pipsissewa is a shy plant retiring to moss-covered banks in cold dark woods. Its delightful odor calls attention to its presence and its glossy evergreen leaves and dainty pink flowers are soon discovered. After the flowers have withered, the brown seed pods remain sometimes throughout the winter scattering the seeds to the wind. Pipsissewa belongs to the *Pyrola* group of the Heath Family, and is called sometimes prince's pine.

Western pipsissewa is distributed from New Mexico to Montana, California, and Alaska. Its eastern relative is the typical form of the species and is widespread in the northeastern United States and Canada.

The plant sketched grew on the shore of Emerald Lake, near Field, British Columbia, at an altitude of 5,000 feet.

RED COMANDRA

Comandra livida Richardson

Red comandra belongs to the Sandalwood Family, which has few representatives in this country, most of its members being shrubs and trees of the tropics. It is parasitic on the roots of other plants, and it withers immediately when gathered. The light green flowers are small and inconspicuous, but the fruits, when they mature in mid-summer, are of a vivid striking red. Two other comandras with greenish or yellowish fruits are widely distributed in the United States.

This species of comandra has a wide range, occurring from the mountains of Vermont to Labrador, and across Canada to British Columbia and even Alaska.

We gathered the plant near Glacier Lake on the headwaters of the Saskatchewan River, fifty miles north of Lake Louise at an altitude of 6,000 feet, where this sketch was made.

PALE STRAWBERRY

Fragaria glauca (Watson) Rydberg

Wild strawberries grow almost everywhere in the Canadian Rockies. Their large white flowers with yellow centers and the bright red fruits which follow them are known to all campers. Later in the season the leaves turn red. The plants propagate by runners, produced after the fruiting season. A tea made from the leaves is most efficacious in intestinal complaints, and its properties were known to the Indians, who often chewed the leaves for the same purpose. Wild strawberries are found throughout most of the United States and Canada, and also extend far southward along the mountains of Mexico. Long ago they were brought into cultivation, and they have been improved greatly, at least in size, by horticulturists.

This member of the Rose Family ranges from Nevada, New Mexico, and South Dakota to British Columbia.

The sketch was made from a specimen collected in the valley of Baker Creek, thirty miles by trail from Lake Louise, at an altitude of 5,000 feet.

REDSTEM SAXIFRAGE

Saxifraga lyallii Engler

When traveling over the higher mountain regions above timberline, we frequently found the sloping banks of the tiny valleys spread with carpets of redstem saxifrage. Where the soil was wet by drippings from snowbanks, the tiny red and white flowers, carried well above the tufts of leaves on their red stems, reached their greatest perfection. When clumps of *parnassia* are associated with them, the effect is beautiful indeed.

Redstem saxifrage is a plant of narrow range, being found only from Montana and Alberta to British Columbia and Alaska.

The flowers sketched were obtained near Baker Lake, fifteen miles by trail from Lake Louise, at an altitude of 6,500 feet.

YELLOW DRYAD

Dryas drummondii Richardson

As yellow dryad is usually seen by mountain visitors, its mats of crinkled leaves are surmounted by fluffy seed heads, for the flowers open early and last for only a brief season. The plant grows most profusely in gravelly glacial stream bottoms, in limestone soil. Here it abounds until overwhelmed in midsummer by the high waters of melting glacial ice, surviving only on portions of the stream banks left undisturbed by the rushing water. The pale yellow flower always turns its face downward, and does not open fully to the sunlight. The dryads belong to the Rose Family.

This species is found often at high elevations, from Quebec to Montana, British Columbia, and Alaska.

The specimen sketched was procured in the Ice River Valley, twenty-five miles by trail from Leancoil Station on the Canadian Pacific Railroad, British Columbia, at an altitude of 3,500 feet.

YELLOW DRYAD

Dryas drummondii Richardson

FRUIT OF PLATE 364

When the flowers of yellow dryad are past, their stalks lengthen and soon the twisted seed heads develop into balls of fluff. These are borne on dainty stems about six inches above the close mats of gray-green leaves. Near Glacier Lake they grew in fairy rings. The soft pink fluffy fruits were very beautiful. The horses considered them only from the practical standpoint, and enjoyed eating them.

This member of the Rose Family is found in the mountains from Quebec to Montana, British Columbia and Alaska.

In the valley of the Siffleur River, fifty miles north of Lake Louise, by trail, the plant grew in abundance, and here we obtained these specimens at an altitude of 3,500 feet.

PLATE 365

HELIOTROPE VALERIAN

Valeriana sitchensis Bongard

Heliotrope valerian grows plentifully in moist upland meadows, or on open mountain slopes, its tall succulent stems lifting the heads of white or pinkish flowers well above the surrounding vegetation. The flowers are very sweet-scented with a fragrance suggesting heliotrope and attract numerous small insects. If they are gathered and placed in water, however, the penetrating odor so characteristic of the Valerian Family becomes clearly noticeable and the water turns pink. The odor of the roots persists long after they are dry. Numerous species of valerian grow in the United States, especially in the West.

Heliotrope valerian is found from Montana and Oregon north to Yukon and Alaska.

The flowers sketched were obtained near Hector, British Columbia, at an altitude of 5,000 feet.

MOSS CHAMPION

Silene acaulis Linnaeus

Moss champion is one of the most attractive of the alpine plants and one frequently seen by the mountaineer climbing above timberline. Although its blooming season is short, differences in altitude and exposure in its many habitats are responsible for its blooming during a longer period than most alpine plants. It grows from a single woody root anchored deep in rocky soil, and spreads into a flat cushion often a foot or more in diameter. The bright green of the narrow leaves is beautifully contrasted with the pink, or rarely white, flowers, and the plant is always a joy to behold.

This lovely member of the Pink Family is found in arctic or arctic-alpine situations, from New Hampshire to Greenland, across Canada and from the highest mountains of New Mexico to Alaska; also in Europe and Asia.

The plant sketched was procured near Baker Lake, fifteen miles by trail north of Lake Louise, Alberta, at an altitude of 7,500 feet.

ALPINE HAREBELL

Campanula lasiocarpa Chamisso

In the southern part of its range alpine harebell is a comparatively rare plant and is to be found only by those hardy souls who climb to the heights. Here above timberline we found it hiding among the short grasses, as though to gain a little shelter from winds and storms. It was a thrilling experience to come upon so shy and rare a flower.

This attractive little harebell has a northern range, occurring in Alberta, British Columbia, and Alaska. It is found also in Siberia and Japan.

The sketch was made from a flower obtained on Eagle Peak, near Glacier, British Columbia, at an altitude of 8,000 feet.

HAREBELL

Campanula rotundifolia Linnaeus

No one who has seen harebells remains unappreciative of their dainty beauty. The apparently delicate stems are really strong and well able to support the flowers they carry. The buds are usually upright, but the flowers when open are horizontal or turn downwards to protect the stamens and pistils from passing showers. The name *rotundifolia* ("round-leaf") describes the basal leaves of the plant, which usually disappear before the flowers have developed.

The harebell has as wide a distribution as any member of the Bell-flower Family, ranging from Pennsylvania to Illinois, New Mexico, and California, and north to Labrador and Alaska. It grows also in Europe and Asia. It is the Scotch bluebell or "bluebells of Scotland" that is celebrated in verse.

The sketch was made from specimens found near Hector, British Columbia, at an altitude of 4,000 feet.

RED WILLOWWEED

Epilobium latifolium Linnaeus

Red willowweed is a superb member of the Evening-primrose Family that prefers gravelly stream bottoms, especially those overflowed by the water from melting glaciers, and also often borders alpine brooks. The large petals are inserted at the top of the long slender pods, which, when ripe, split lengthwise, freeing the plumed seeds which are blown by the wind far from the parent plant. When the plants are in bloom, they make a gorgeous sight, often covering many acres with their lovely color.

This plant has a wide range from Greenland to Quebec, South Dakota, Colorado, Washington, and Alaska. It occurs also in Europe and Asia.

The sketch was made from a specimen obtained near Glacier, British Columbia, at an altitude of 3,500 feet.

NORTHERN ANEMONE

Anemone parviflora Michaux

On account of its greater range in altitude, northern anemone flowers during a longer season than most of its relatives. If we climb in midsummer above timberline, we find it in sheltered places where the snow has recently melted, blooming beside the rivulets of snow water. It is able to withstand even the frosty nights of the higher slopes and appears none the worse for the freezing it has experienced. When the flowers are past, a woolly seed head soon develops, and in autumn the seeds are carried away by the wind to new localities. The name Anemone is derived from a Greek word meaning "the wind." Northern anemone belongs to the Buttercup Family, and has a wide range from Ontario to Labrador, Colorado, and Alaska. It grows also in Asia.

The flowers sketched were found near Wild Flower Camp, twenty-five miles by trail from Lake Louise, Alberta, at an altitude of 7,000 feet.

ALBERTA PAINTBRUSH

Castilleja miniata Bentham

No group of plants that we have observed in the Canadian Rockies exhibits such a wonderful variety of color as the species of *Castilleja*, almost universally known as paintbrushes, which are representatives of the Figwort Family. All tints from white, through yellow, green, pink, red, and winecolor, with every degree of shade between, are to be seen in nature's gardens. Some are dazzlingly brilliant, but others are softly shaded with the deepest color on the tips of the bracts forming the head. Even in the same species there is often a surprising variation in coloring, and isolated plants of forms with normally red bracts have yellow bracted spikes.

This species of paintbrush ranges from Montana and Washington north to Alberta and Saskatchewan.

The specimen painted grew near our camp on the headwaters of the Clearwater River, forty-five miles by trail north of Lake Louise, Alberta, at an altitude of 6,500 feet.

ELEPHANTHEAD

Pedicularis groenlandica Retz

Elephanthead loves wet meadows and the borders of lakes and streams. It prefers the region about timberline, and in sedgy upland swampy places it supplies masses of rich color. Flowers, stems, and leaves are often of almost the same tone. The curious flower resembles an elephant's head with the trunk raised.

This plant and a similar one growing in California have been referred by a few botanists to a distinct genus, appropriately named *Elephantella*, but the two species agree essentially in their flower structure with other members of the genus *Pedicularis*.

This representative member of the Figwort Family is found in Greenland and Labrador, and from the mountains of New Mexico and California northward to Alaska.

It grew in many places in the Ptarmigan Valley, fifteen miles by trail north from Lake Louise, Alberta, at an altitude of 6,000 feet, where this specimen was obtained.

LEWIS MONKEYFLOWER

Mimulus lewisii Pursh

In the neighborhood of Glacier, British Columbia, where I first saw this striking monkeyflower, it grew luxuriantly. Along the streams about timberline it found the habitat most suited to it, for although it never grew in water, it needed the cool drippings from melting snows higher up the slopes to sustain its lush growth. The large richly colored flowers were in pleasing contrast with the green leaves. I never found the plant in the Rockies east of the Columbia River. The specific name was given in honor of Meriwether Lewis of the celebrated Lewis and Clark Expedition to the Northwest. Although dissimilar in aspect, the monkeyflowers belong to the same family as the elephanthead, shown in the preceding plate—namely, the Figwort family.

Lewis monkeyflower is found from Colorado to Arizona, California, and British Columbia and locally eastward to Minnesota.

These specimens were gathered at an altitude of 3,500 feet.

ALPINE MONKEYFLOWER

Mimulus caespitosus Greene

The low growth of alpine monkeyflower coupled with the unusually large blossoms makes this species easy to recognize. It loves wet places by the edges of cold brooks, although it does not grow actually in the water. Often it is the first flower to gain a foothold in the beds of glacial moraines, uncovered by the recent recession of the ice. The masses of golden yellow flowers were conspicuous near the forefoot of the Illecillewaet Glacier, near Glacier, British Columbia. The alpine monkeyflower belongs to the Figwort Family and ranges from Idaho to California and northward to British Columbia.

The flowers painted were gathered in the Asulkan Valley near Glacier, British Columbia, at an altitude of 3,500 feet.

ALEUTIAN FLEABANE

Erigeron unalaschensis (De Candolle) Rydberg

The alpine valleys of the Canadian Rocky Mountains are wonderful places in which to find wild flowers that flourish in high altitudes. Among these the Aleutian fleabane, a member of the great Aster Family, deserves a prominent place. It delights in the moist earth near snow-water streams, being able to withstand the violent, almost daily changes from warm sunshine to freezing temperatures. The dainty plant often has a woolly covering to protect it.

This fleabane is found from Montana to Alaska as well as in Labrador and Greenland.

The specimens sketched were gathered in the Little Yoho Valley, fifteen miles from Field, British Columbia, at an altitude of 7,500 feet.

WHITEBARK PINE

Pinus albicaulis Engelman

Whitebark pine, if growing in a favorable location, is somewhat different in its habit of growth from most other pine trees. The branches are flexible and often almost erect, the purple cones being borne near their ends. The trunk is frequently two to four feet in diameter, but the height of the tree is only twenty to thirty feet. This pine is seldom found below 5,000 feet, and at timberline it grows as a low and often creeping shrub. When in bloom the dainty pink staminate flowers are very lovely. They shed their pollen freely. On wind-swept summits this tree takes on weatherbeaten and fantastic forms.

Whitebark pine ranges from Wyoming to California and north to Alberta and British Columbia.

The branch sketched came from a tree which grew on the side of the Yoho Valley, ten miles from Field, British Columbia, at an altitude of 5,000 feet.

ENGELMANN SPRUCE

Picea engelmanni (Parry) Engelmann

Engelmann spruce is a majestic tree, sometimes growing to a height of a hundred and fifty feet with a trunk four or five feet in diameter. Its branches are produced in regular whorls. When growing with sufficient space around it, it is a handsome pyramidal tree, and in favorable seasons the top is adorned with masses of rich brown cones.

From Arizona and New Mexico northward to Alberta, British Columbia, and Yukon is the range of Engelmann spruce.

The branch sketched grew in the valley of Clearwater River, forty miles by trail north of Lake Louise, Alberta, at an altitude of 7,000 feet.

CREEPING JUNIPER

Juniperus horizontalis Moench

The shores of the Saskatchewan River, Alberta, are often sandy, and along them we found many shrubs of creeping juniper with quantities of blue berries adorning their branches. The plant flourished in spite of the blowing sands, which in these places discourage all but the hardiest vegetation. Creeping juniper is similar in foliage to the familiar red cedar of the East, but in habit it is very different, growing usually as a dense mat, flat upon the ground.

Creeping juniper has a wide range from northern New York, Maine, and Nova Scotia to Minnesota, Wyoming, Alberta, and British Columbia.

The branch sketched grew at an altitude of 5,000 feet.

DRUMMOND WILLOW

Salix drummondiana Barratt

In the Canadian Rockies, as late summer arrives, this willow is clothed in its most beautiful garb. Each branch is adorned with loose masses of fluffy cotton, consisting of the seeds and the adhering plumes. These masses are blown far and wide by the wind, and if the plants happen to grow near streams, a windrow of cotton often accumulates along their moist margins. Later this is caught by the water and carried far down stream.

Drummond willow has a narrow range, being confined to Alberta and British Columbia.

The sketch was made from a specimen that grew at Sheep Creek, seventy-five miles by trail from Lake Louise, Alberta, at an altitude of 6,000 feet.

LYALL LARCH

Larix lyallii Parlatore

Of all the trees in the Canadian Rockies, Lyall larch is the most interesting and the most picturesque. It is usually found between 6,000 and 8,000 feet elevation, where its bright green foliage is easily recognized from a distance, skirting the darker green spruces and firs at timberline. A rugged tree, gnarled and twisted by the wind into picturesque forms, it reaches a height of fifty feet in favorable localities, with a trunk diameter of twenty inches. The cones are produced about once in three years. The wood is tough and hard to cut, but it makes a very hot although not lasting fire. As soon as a hard frost comes, the leaves turn bright yellow and soon fall. Doctor Charles S. Sargent and William M. Canby journeyed all the way from Boston in 1898 to find this tree in fruit. I had been stopping at Lake Louise and had procured a number of branches of Lyall larch with beautiful cones, from the shores of Lake Agnes. On arriving at Banff, I left my precious specimens on the rack beside the dining room door, while I got my supper. When the meal was finished, the bunch of larch had disappeared. On investigation I found the two botanists sitting on the floor, with the Lyall larch between them, filled with enthusiasm that their long journey would be a fruitful one.

Lyall larch has a very narrow range. It grows in a few places in Montana and in northern Oregon, but is plentiful only in Alberta and British Columbia.

The branch sketched came from near Lake McArthur, twelve miles by trail from Hector, British Columbia, at an altitude of 7,500 feet.

CROWBERRY

Empetrum nigrum Linnaeus

Crowberry grows as a dense matted shrub in rocky or shady places, frequently in company with Rocky Mountain cassiope. It is easy to confuse it with the latter plant if the two are not examined closely. The flowers are inconspicuous but the black berries are distinctive. The berries are much eaten by Arctic birds, although rather insipid to the human taste. This primitive plant is believed by some botanists to represent a survival, from some past geologic period, of a group ancestral to the present-day Heath Family. The Crowberry Family, as it is called, has few living members and most of these occupy isolated areas, widely scattered over the earth, evidently relics of a former much greater abundance.

This species is the most widespread member of the family, ranging from northern New York, Maine, and Greenland westward to Michigan and California, and northward to Alaska. It occurs also in Asia and Europe.

We gathered these specimens at Marble Canyon not far from the summit of Vermilion Pass, sixteen miles from Castle Station, Alberta, at an altitude of 5,000 feet.

SIBERIAN ONION

Allium sibericum Linnaeus

Siberian onion is seen frequently in the higher valleys in the Canadian Rockies. When growing in rich soil with an abundant supply of moisture it is a showy plant. It occurs singly or in clumps, and is easily identified by its odor, which is similar to that of the garden chive, but more intense. It may be used for flavoring stews and soups, although with caution because its flavor is very strong. The flowers resemble tiny lilies, and as a matter of fact the plant is a member of the Lily Family.

This species of onion has a wide range, from northern New York to Maine, and westward to Wyoming, Oregon, and Alaska. It is found also in Europe and Asia.

These specimens were gathered near Lake Louise, Alberta, at an altitude of 5,500 feet.

SLIM LARKSPUR

Delphinium depauperatum Nuttall

The brilliant color of slim larkspurs in mountain meadows filled us with delight, and when they were in company with Alberta paintbrush, bur-forget-me-not, and heliotrope valerian, all in full bloom, we were able to appreciate the full beauty of nature's garden. In some places slim larkspur occurred in pure stands so that the meadows were blue with them. They are poisonous to cattle, which eat the young shoots in early spring, and the districts where they grow cannot be used for pasture. The name *Delphinium* was given to this genus of plants from a fancied resemblance of the flower to a dolphin. The larkspurs belong to the Buttercup Family.

Slim larkspur ranges from Montana to California and Oregon and northward to Alberta.

The plants sketched were obtained near Wild Flower Camp, twenty-five miles by trail from Lake Louise, Alberta, at an altitude of 6,000 feet.

ARROWLEAF GROUNDSEL

Senecio triangularis Hooker

Arrowleaf groundsel is a common plant which blooms late in the season in the Canadian Rockies. It likes the rich soil of the borders of alder thickets, where the brittle stems are somewhat protected from the wind, and other moist places. It is a lush, coarse plant whose yellow flowerheads give a gay color note in contrast to the bright green leaves.

The genus *Senecio* belongs to the Aster Family, and comprises at least twelve hundred species found in many parts of the world. They are widely distributed over the North American continent. This species ranges from New Mexico and California north to Saskatchewan and Alaska.

We gathered the specimen sketched near Evelyn Glacier, twenty-five miles from Castle, Alberta, at an altitude of 6,500 feet.

WRIGHT PENTSTEMON

Pentstemon wrightii Hooker

By the side of the winding road leading up the dry slopes of Tumamoc Hill to the Desert Laboratory of the Carnegie Institution, near Tucson, Arizona, I found great clumps of this beautiful pentstemon. The stems supporting the graceful flower panicles were two and a half feet high. The lovely color of the blossoms was a delight to all who passed. The plants grew out of the disintegrated rock of the mountain and subsisted with so little soil that it seemed all but impossible for them to flourish in such perfection in so arid a spot.

The pentstemons are named from the fact that in addition to their four normal stamens, they have a fifth sterile stamen which often is conspicuous because it is covered with hairs, and often extends well up toward the mouth of the corolla. The pentstemons belong to the Figwort Family.

WHITE DAWNROSE

Pachyloplus marginatus (Nuttall) Rydberg

In the morning the dry sandy plains or mesas about Tucson are dotted with the beautiful white flowers of the dawnrose. About noon the blossoms close, and, turning pink in fading, they soon disappear, a new bud opening next morning. The petals are so ethereal in their delicate loveliness that it is hard to understand how they can spring from such an unfriendly dry soil.

White dawnrose ranges from Colorado, Utah, and Arizona to Idaho and Oregon.

The specimens sketched were gathered about forty miles south of Tucson, Arizona.

EVENING-PRIMROSE

Pachyloplus hirsutus Rydberg

When traveling along the highway toward the Roosevelt Dam in Arizona I saw a plant about eighteen inches tall growing from a crevice in the rocks. It was full of buds as well as withered flowers, rising among masses of long green leaves. When the plant was lifted it was carried for several days awaiting an opportunity to sketch it. One evening on returning to the hotel for dinner, I noticed, on entering the room, a delightful odor like that of a night-blooming cereus, and the plant was discovered in full bloom. The sketch fortunately was made that evening, by electric light, for the next morning all the flowers had withered.

This species of evening-primrose ranges from Arizona and New Mexico to Wyoming.

CLUSTERLILY

Hookera pauciflora (Torrey) Tidestrom

The Desert Laboratory of the Carnegie Institution of Washington is located near Tucson, Arizona, high up on a small desert mountain notable for its profusion of cactuses and other strange plants which are able to exist with a minimum of water. Among the sun-baked rocks grow many clusterlilies, which are always attractive in their dainty beauty. Their bulbs, sunk deep in soil, enable the plant to live from one blooming season to another.

The genus of the Lily Family to which clusterlily belongs contains many species restricted to Western North America, and occurring mainly in California, but the present species grows in Arizona and New Mexico. The technical name of this genus was given in honor of Sir William Jackson Hooker, one of the most eminent of English botanists.

CALIFORNIA PITCHERPLANT

Chrysamphora californica (Torrey) Greene

California pitcherplant is the only member of the Pitcherplant Family growing west of the Mississippi Valley. It is quite as curious a plant as its eastern relatives, the *Sarracenia*s. The pitcher, often two feet tall, has leafy appendages growing from its mouth, the whole suggesting the head of a cobra. These appendages are somewhat trough-like, and insects traveling along them to collect the nectar secreted there are unsuspectingly led to the brink of the hollow leaves. Many of these fall in and are digested, contributing to the nourishment of the plant. The flower presents an almost equally strange appearance.

The plants grow in abundance in their favorite localities, the bogs of northern California, where this specimen was obtained, and adjacent Oregon.

SCARLET MARIPOSA

Calochortus kennedyi Porter

Scarlet mariposa is one of the most brilliant representatives of the genus *Calochortus*. Its vivid color is accentuated by the contrasting dark purple gland on the lower part of each petal. These mariposas, of which there are many species, greatly diversified as to the shape and color of their flowers, are very abundant in the foothills and on the mountain slopes of Arizona and California. Some of them extend far southward into the mountains of Central Mexico. The genus is one of the most characteristic western American representatives of the Lily Family.

This species has a rather narrow range in Nevada, Arizona, and southern California.

BUSHPOPPY

Dendromecon rigidum Bentham

The profuse bright yellow flowers of bushpoppy give the shrub a striking appearance. It grows from two to eight feet high, and blooms almost throughout the year. The leaves are willowlike and leathery in texture, and the main stems are rich brown in color.

This member of the Poppy Family has a restricted range in southern California and northern lower California.

MEXICAN POPPY

Eschscholtzia mexicana Greene

Mexican poppy is a gay member of the Poppy Family, covering sandy desert mesas with sheets of lovely flowers. It is rather lower in growth than the California poppy. The finely cut gray-green leaves make an effective background for the flowers, which open fully in bright sunshine, but close at night and do not open in cloudy weather. The buds are enclosed by the sepals which form a tiny cap, which is pushed aside as the petals unfold. The plant is cultivated easily and is a great favorite with the amateur gardener.

Mexican poppy occurs in arid portions of Arizona, Nevada, Utah, and northern Mexico.

The sketch was made from specimens growing near Tucson, Arizona.

FIRE PENTSTEMON

Pentstemon eatonii Gray

The thrifty clumps of fire pentstemon growing in perfection among the rocks or pendent from the sides of a canyon wall are strikingly handsome. They seem to delight in the most inaccessible places, and thrive in the scantiest pocket of soil, their flexible stems, two to three feet long, waving in the wind. This plant is one of the showiest members of the Figwort Family.

Fire pentstemon has a comparatively narrow range in Arizona, Utah, and Nevada.

The specimens grew near Superior, Arizona.

CARDINAL MONKEYFLOWER

Mimulus cardinalis Douglas

If fortune favors, and you visit the Grand Canyon at the proper season of the year, you will find the brilliant cardinal monkeyflower in full glory at the Indian Gardens. Following down Bright Angel Trail with its many switchbacks and majestic panoramas of the canyon walls, you come to this comparatively level oasis, where a stream flows from a kindly spring. Here one can appreciate what water means to a dry country. Luxuriant trees and flowers hug the borders of the stream, and the eye can follow its course by the green fringe until the last trickle of water disappears in the ground. The cardinal monkeyflower, a representative of the Figwort Family, is attractive not only on account of the brilliant color of the blossoms, but also because of the lush growth of rich green leaves and stems that form a fitting background for the flowers.

Its range is from Mexico to western New Mexico and California, and northward to Oregon.

The plant painted was obtained near the spring mentioned above, in the Grand Canyon, Arizona.

OCOTILLO

Fouquieria splendens Engelm.

In crossing the desert by train over the southern route to California, none of the new and curious plants observed is stranger than the ocotillo. A number of slender rod-like stems eight or ten feet long spring from a single root, rigidly spreading outward and upward. They are dull greenish gray in color, and are armed with strong sharp thorns half an inch long. When the rains come in spring, the bare stems show signs of life, small green leaves appearing along them, while a mass of buds develops on a short stem at the end, spreading like a fish tail. Soon the buds open and the heavy bunches of flowers wave slowly back and forth in the desert wind. The Mexicans form paling fences about their dooryards by planting these stems close together in the ground and fastening them with wire. They sometimes take root and form a living fence, an effective barrier against most animals. This curious plant belongs to a small group known as the Ocotillo Family, which is nearly confined to the dry regions of Mexico.

Ocotillo has a wide range, from western Texas to southern California and over northern Mexico.

The specimen painted was obtained near Superior, Arizona.

YUCCA

Yucca baileyi Wooton and Standley

The genus *Yucca* belongs to the Lily Family and contains many species native in North and Central America. The roots, when rubbed in water, give a thick suds, and they are often used as a substitute for soap in washing clothes, especially by the native people of the Southwest. The Amole, as the root is called by the Mexicans, is very efficacious in cleaning fabrics, or when used in bathing or as a shampoo, leaving the skin smooth and the hair soft and glossy. The names soap-root and Spanish dagger or Spanish bayonet are applied to the yuccas in the United States.

When driving in June from Gallup, New Mexico, to Zuñi, I found this beautiful yucca coming into bloom in many places along the edge of the sparse pinyon or nut pine forests. The sturdy spikes of large, pale green flowers, tinged on the sepals with purple, grew from two to three feet in height. They rose from a bristling clump of relatively short, narrow, sharp-pointed green leaves, furnished along their borders with stiff, coarse, threadlike fibers.

This yucca, which was named for Vernon Bailey, of the U.S. Biological Survey, has a narrow range in northwestern New Mexico and northeastern Arizona.

SCARLET GLOBE-MALLOW

Sphaeralcea grossulariaefolia (Hooker and Arnott) Rydberg

Scarlet globe-mallow is one of the showy plants of the Arizona mesas and river valleys, where often it grows in great abundance. The flowers commonly are scarlet, but they are equally handsome when of a paler hue. They are produced in spikelike panicles on the upper part of stems so weak that they bend gracefully before the wind. By the Mexicans the plant is called *malojo*, "eye-bane," because the small, branched, starlike hairs on the leaves and stems adhere to the fingers in handling, and if brushed into the eyes, cause irritation and pain.

This brilliant member of the Mallow Family is very common in Arizona, and ranges northward to Idaho and Wyoming.

The specimen sketched was gathered near the Desert Laboratory of the Carnegie Institution at Tucson, Arizona.

QUILL-LEAF TILLANDSIA

Tillandsia fasciculata Swartz

In motoring from lower Virginia southward, the ever increasing abundance of epiphytic plants is striking. In southern Virginia, Spanish moss frequently drapes the trees, especially the bald cypress. Farther down the coast other species of the Pineapple Family make their appearance, and in Florida a number of different kinds are native. In some of the hammocks there, all the branches of the trees and even the bark of the trunk, serve for the attachment of bromeliads, orchids, and ferns, and the epiphytic plants are represented by many different species. In such a hammock a short distance north of West Palm Beach, Florida, the specimen here illustrated was obtained.

The tillandsia usually dies after flowering, but its minute seeds, with their tufts of silky hairs, are scattered by the winds. The leaves of these plants are dilated at the base, thus forming a series of pockets which catch and hold water. Vegetable debris, as well as atmospheric dust, falls into the water and the plant absorbs the products of its decay, thus obtaining much of its nourishment.

Quill-leaf tillandsia ranges from southern Florida south through the West Indies, and is widely distributed in other parts of tropical America.

CATESBY PITCHERPLANT

Sarracenia catesbaei Elliott

This pitcherplant was discovered by Mark Catesby, who explored the Carolinas in 1722, and was later named in his honor by Stephen Elliott, in his "Sketch of the Botany of South-Carolina and Georgia." There is a difference of opinion among present-day botanists as to its status, some agreeing with Elliott that it is a distinct species, while others hold it to be a hybrid between *Sarracenia flava* and *S. purpurea*. It does combine the characters of the two presumptive parents in a striking way,—in the shape and position of the leaves, in the size of the flower parts, and especially in the petal color, which exhibits an attractive mingling of the yellow of the one species with the maroon of the other.

Catesby pitcherplant is reported to occur from Florida to North Carolina, although always rare and local. The specimen painted was grown in the Department of Agriculture greenhouses by Dr. Frederick V. Coville, the root having been collected by Dr. Edgar T. Wherry in a swamp near Quincy, Florida, in 1925. Dr. Wherry states that this plant grew in association with the two species of which it is supposed to be a cross, but that the adult clump was surrounded by seedlings in such a manner as to indicate that it is capable of reproducing itself, and is, accordingly, on the way to becoming an independent species.

INDEX

INDEX

- Abies lasiocarpa* (Hooker) Nuttall, plate 18,
volume 1
- Acer carolinianum* Walter, plate 138, volume 11
- Acer rubrum* Linnaeus, plate 137, volume 11
- Achillea lanulosa* Nuttall, plate 151, volume 11
- Actaea arguta* Nuttall, plate 73, volume 1
- Aesculus pavia* Linnaeus, plate 47, volume 1
- Agoseris gracilens* (Gray) Kuntze, plate 89, volume 11
- Agoseris graminifolia* Greene, plate 88, volume 11
- Agoseris*, Grassleaf, plate 88, volume 11
- Agoseris*, Slender, plate 89, volume 11
- Agoseris villosa* Rydberg, plate 195, volume 111
- Agoseris*, Woolly, plate 195, volume 111
- Alaska Fleabane, plate 290, volume 1v
- Alberta Paintbrush, plate 372, volume v
- Alberta Primrose, plate 274, volume 1v
- Alder, Hazel, plate 16, volume 1
- Alder, Western Green, plate 186, volume 111
- Aleutian Fleabane, plate 376, volume v
- Allium cernuum* Roth, plate 304, volume 1v
- Allium sibericum* Linnaeus, plate 383, volume v
- Alnus rugosa* (Du Roi) Sprengel, plate 16, volume 1
- Alnus sinuata* (Regel) Rydberg, plate 186,
volume 111
- Alpine Fernleaf, plate 121, volume 11
- Alpine Fir, plate 18, volume 1
- Alpine Forget-me-not, plate 352, volume v
- Alpine Harebell, plate 368, volume v
- Alpine Milkvetch, plate 295, volume 1v
- Alpine Monkeyflower, plate 375, volume v
- Alpine Pointvetch, (flower), plate 282, volume 1v
- Alpine Pointvetch, (fruit), plate 283, volume 1v
- Amelanchier alnifolia* Nuttall, plate 117, volume 11
- American Columbine, plate 141, volume 11
- American Holly, plate 266, volume 1v
- American Mistletoe, plate 265, volume 1v
- American Pasqueflower, (flower), plate 95,
volume 11
- American Pasqueflower, (fruit), plate 96,
volume 11
- American Twinflower, plate 196, volume 111
- American Vetch, plate 190, volume 111
- American Waterlily, plate 223, volume 111
- American Wistaria, plate 149, volume 11
- Anaphalis margaritacea* (Linnaeus) Gray, plate 289,
volume 1v
- Androsace carinata* Torrey, plate 107, volume 11
- Androsace, Pygmy, plate 185, volume 111
- Androsace subumbellata* (A. Nelson) Small,
plate 185, volume 111
- Androsace, Sweet, plate 107, volume 11
- Anemone deltoidea* Hooker, plate 306, volume 1v
- Anemone, Forest, plate 306, volume 1v
- Anemone, Globe, plate 291, volume 1v
- Anemone globosa* Nuttall, plate 291, volume 1v
- Anemone, Northern, plate 371, volume v
- Anemone parviflora* Michaux, plate 371, volume v
- Anemone, Plume, (flower), plate 163, volume 111
- Anemone, Plume, (fruit), plate 164, volume 111
- Anemonella, plate 14, volume 1
- Anisostichus capreolatus* (Linnaeus) Bureau,
plate 261, volume 1v
- Antennaria howellii* Greene, plate 104, volume 11
- Antennaria luzuloides* Torrey and Gray, plate 171,
volume 111
- Antennaria rosea* (Eaton) Greene, plate 286,
volume 1v
- Apple, May-, plate 143, volume 11
- Aquilegia brevistyla* Hooker, plate 292, volume 1v
- Aquilegia canadensis* Linnaeus, plate 141, volume 11
- Aquilegia flavescens* Watson, plate 201, volume 111
- Arborvitae, Giant, plate 187, volume 111
- Arbutus, Trailing, plate 126, volume 11
- Arctostaphylos uva-ursi* (Linnaeus) Sprengel,
(flower), plate 111, volume 11
- Arctostaphylos uva-ursi* (Linnaeus) Sprengel, (fruit),
plate 112, volume 11
- Arctous alpina* (Linnaeus) Niedenzu, plate 355,
volume v
- Arethusa, plate 57, volume 1
- Arethusa bulbosa* Linnaeus, plate 57, volume 1
- Arisaema dracontium* (Linnaeus) Schott, plate 22,
volume 1
- Arisaema triphyllum* (Linnaeus) Torrey, plate 331,
volume v
- Arnica, Lake Louise, plate 10, volume 1

Arnica loniseana Farr, plate 10, volume 1
Arnica tomentosa Macoun, plate 348, volume v
 Arnica, Woolly, plate 348, volume v
Aronia arbutifolia (Linnaeus filius) Elliott, (flower), plate 31, volume 1
Aronia arbutifolia (Linnaeus filius) Elliott, (fruit), plate 31a, volume 1
 Arrowhead, Arum, plate 158, volume 11
 Arrowleaf Groundsel, plate 385, volume v
Artemisia discolor Douglas, plate 288, volume 1v
 Arum Arrowhead, plate 158, volume 11
Asarum canadense Linnaeus, plate 127, volume 11
Asclepias speciosa Torrey, plate 90, volume 11
Asclepias tuberosa Linnaeus, plate 36, volume 1
Asimina triloba (Linnaeus) Dunal, plate 328, volume v
Aster campestris Nuttall, plate 118, volume 11
 Aster, Pineland, plate 160, volume 11
 Aster, Prairie, plate 118, volume 11
Aster squarrosus Walter, plate 160, volume 11
Astragalus alpinus Linnaeus, plate 295, volume 1v
Astragalus bourgovii Gray, plate 21, volume 1
 Atamasco-lily, plate 255, volume 1v
Atamosco atamasco (Linnaeus) Greene, plate 255, volume 1v
 Avalanche Buttercup, plate 114, volume 11
 Avalanche-lily, plate 202, volume 111
Azalea arborescens Pursh, plate 55, volume 1
 Azalea, Flame, plate 43, volume 1
Azalea lutea Linnaeus, plate 43, volume 1
Azalea nudiflora Linnaeus, plate 128, volume 11
 Azalea, Pinkshell, plate 253, volume 1v
Azalea rosea Loiseleur, plate 232, volume 111
 Azalea, Sweet, plate 55, volume 1
Azalea vaseyi (Gray) Rehder, plate 253, volume 1v

B*alsamorhiza sagittata* (Pursh) Nuttall, plate 69, volume 1
 Balsamroot, plate 69, volume 1
 Baneberry, Ivory, plate 73, volume 1
 Bearberry, (flower), plate 111, volume 11
 Bearberry, (fruit), plate 112, volume 11
 Bearberry Honeysuckle, plate 60, volume 1
 Bearcabbage, Green, plate 174, volume 111
 Beargrass, plate 302, volume 1v

Beautyberry, plate 210, volume 111
 Bedstraw, Northern, plate 63, volume 1
 Beebalm, Spotted, plate 233, volume 111
Befaria racemosa Ventenat, plate 17, volume 1
Berberis repens Lindley, plate 30, volume 1
 Betony, Wood: see *Red Helmet*
Bignonia radicans Linnaeus, plate 227, volume 111
 Big Whortleberry, plate 7, volume 1
Bikukulla canadensis (Goldie) Millspaugh, plate 136, volume 11
Bikukulla cucullaria (Linnaeus) Millspaugh, plate 247, volume 1v
 Birdsfoot Violet, plate 39, volume 1
 Blackberry, Highbush, plate 146, volume 11
 Bladderpod, Double, (flower), plate 167, volume 111
 Bladderpod, Double, (fruit), plate 168, volume 111
 Bloodroot, plate 123, volume 11
 Bluehead, plate 338, volume v
 Bluebells, Virginia, plate 20, volume 1
 Bluebells, Western, plate 173, volume 111
 Blueberry, Highbush, plate 228, volume 111
 Blueberry, Pineland, plate 230, volume 111
 Blue-eyed-grass, plate 238, volume 111
 Blue-eyed-mary, plate 246, volume 1v
 Blueflag Iris, plate 332, volume v
 Bluegreen Gentian, plate 108, volume 11
 Blue Phlox, plate 245, volume 1v
 Bogbean, plate 225, volume 111
 Bog Kalmia, plate 133, volume 11
 Bog-orchid, One-leaf, plate 76, volume 1
 Bottle Gentian, plate 161, volume 111
 Bourgeau Rose, (flower), plate 344, volume v
 Bourgeau Rose, (fruit), plate 345, volume v
 Bowmansroot, plate 252, volume 1v
 Box Huckleberry, plate 229, volume 111
 Bronzebells, plate 64, volume 1
 Brook Lobelia, plate 192, volume 111
 Buckeye, Red, plate 47, volume 1
 Buffaloberry, Canada, plate 115, volume 11
 Buff Monkeyflower, plate 200, volume 111
 Buff Pussytoes, plate 171, volume 111
 Bunchberry, (flower), plate 271, volume 1v
 Bunchberry, (fruit), plate 272, volume 1v
 Bur-forget-me-not, plate 351, volume v

Burgess Milkvetch, plate 21, volume 1
 Bush Cinquefoil, plate 77, volume 1
 Bushpoppy, plate 392, volume v
 Butterbur, Northern, plate 189, volume iii
 Buttercup, Avalanche, plate 114, volume ii
 Butterflyweed, plate 36, volume 1
 Butterwort, Northern, plate 198, volume iii
 Butterwort, Purple, plate 235, volume iii

 Cactus, Green Strawberry-, plate 308, volume iv
 Cactus, Lloyds Strawberry-, plate 155, volume ii
 California Pitcherplant, plate 390, volume v
Calla palustris Linnaeus, plate 129, volume ii
 Calla, Wild, plate 129, volume ii
Callicarpa americana Linnaeus, plate 210, volume iii
Calochortus catalinae Watson, plate 205, volume iii
Calochortus clavatus Watson, plate 314, volume iv
Calochortus elegans Lindley, plate 2, volume 1
Calochortus kennedyi Porter, plate 391, volume v
Calochortus macrocarpus Douglas, plate 175, volume iii
Calochortus splendens Douglas, plate 310, volume iv
Calochortus weedii Wood, plate 199, volume iii
Caltha leptosepala De Candolle, plate 287, volume iv
Caltha palustris Linnaeus, plate 208, volume iii
 Calypso, plate 105, volume ii
 Camas, plate 358, volume v
Campanula lasiocarpa Chamisso, plate 368, volume v
Campanula rotundifolia Linnaeus, plate 369, volume v
 Campion, Moss, plate 367, volume v
 Campion, Nodding, plate 279, volume iv
 Canada Buffaloberry, plate 115, volume ii
 Canada Lily, plate 148, volume ii
 Canada Violet, plate 347, volume v
 Canada Wildginger, plate 127, volume ii
Capnoides sempervirens (Linnaeus) Borkhausen, plate 5, volume 1
 Cardinalflower, plate 263, volume iv
 Cardinal Monkeyflower, plate 395, volume v
Carex aurea Nuttall, plate 281, volume iv
 Carolina Jessamine, plate 220, volume iii
 Carolina Maple, plate 138, volume ii

Cassiope mertensiana (Bongard) Don, plate 75, volume 1
 Cassiope, Rocky Mountain, plate 75, volume 1
Castalia odorata (Dryander) Woodville & Wood, plate 223, volume iii
Castilleja lancifolia Rydberg, plate 102, volume ii
Castilleja miniata Benthams, plate 372, volume v
Castilleja pallida (Linnaeus) Kunth, plate 48, volume 1
 Catalina Mariposa, plate 205, volume iii
 Catesby Pitcherplant, plate 400, volume v
 Centaurium, Pink, plate 303, volume iv
Centaurium venustum (Gray) Robinson, plate 303, volume iv
Cercis canadensis Linnaeus, plate 26, volume 1
Chelone glabra Linnaeus, plate 259, volume iv
Chenopodium capitatum (Linnaeus) Aschersen, plate 349, volume v
 Chickasaw Plum, plate 130, volume ii
Chimaphila umbellata var. *occidentalis* (Rydberg) Blake, plate 360, volume v
Chionanthus virginica Linnaeus, plate 140, volume ii
 Chokeberry, Red, (flower), plate 31, volume 1
 Chokeberry, Red, (fruit), plate 31a, volume 1
Chrosperma muscaetoxicum (Walter) Kuntze, plate 147, volume ii
Chrysanthemum californicum (Torrey) Greene, plate 390, volume v
Chrysogonum virginianum Linnaeus, plate 145, volume ii
 Cinquefoil, Bush, plate 77, volume 1
 Cinquefoil, Rosette, plate 182, volume iii
Cirsium bookerianum Nuttall, plate 103, volume ii
Cirsium undulatum (Nuttall) Sprengel, plate 309, volume iv
 Claspig Twistedstalk, plate 84, volume ii
Claytonia parvifolia Mociño, plate 94, volume ii
Claytonia virginica Linnaeus, plate 234, volume iii
 Clematis, Columbia, (flower), plate 99, volume ii
 Clematis, Columbia, (fruit), plate 100, volume ii
Clematis columbiana (Nuttall) Torrey & Gray, (flower), plate 99, volume ii
Clematis columbiana (Nuttall) Torrey & Gray, (fruit), plate 100, volume ii
Clematis crispa Linnaeus, plate 150, volume ii

Clematis, Curly, plate 150, volume II
Clematis viorna Linnaeus, plate 41, volume I
Clintonia borealis (Aiton) Rafinesque, plate 338,
 volume V
Clintonia uniflora (Menzies) Kunth, (flower),
 plate 203, volume III
Clintonia uniflora (Menzies) Kunth, (fruit),
 plate 204, volume III
 Clover, Owl-, plate 119, volume II
 Clusterlily, plate 389, volume V
Collinsia verna Nuttall, plate 246, volume IV
 Columbia Clematis, (flower), plate 99, volume II
 Columbia Clematis, (fruit), plate 100, volume II
 Columbia Lily, plate 316, volume IV
 Columbine, American, plate 141, volume II
 Columbine, Lemon, plate 201, volume III
 Columbine, Shortspur, plate 292, volume IV
Comandra livida Richardson, plate 361, volume V
 Comandra, Red, plate 361, volume V
Conopholis americana (Linnaeus filius) Wallroth,
 plate 214, volume III
Cornus canadensis Linnaeus, (flower), plate 271,
 volume IV
Cornus canadensis Linnaeus, (fruit), plate 272,
 volume IV
Cornus florida Linnaeus, (flower), plate 321,
 volume V
Cornus florida Linnaeus, (fruit), plate 322,
 volume V
Cornus stolonifera Michaux, plate 38, volume I
 Cottongrass, plate 12, volume I
 Cottongrass, Tassel, plate 312, volume IV
 Crab, Wild Sweet, plate 51, volume I
Cracca virginiana Linnaeus, plate 44, volume I
 Cranberrybush, plate 317, volume IV
 Cranberry, Mountain, (flower), plate 193,
 volume III
 Cranberry, Mountain, (fruit), plate 194, volume III
 Cranberry, Small, plate 180, volume III
 Cranesbill, Western, plate 307, volume IV
 Creeping Hollygrape, plate 30, volume I
 Creeping Juniper, plate 379, volume V
 Crested Iris, plate 33, volume I
 Crossvine, plate 261, volume IV
 Crowberry, plate 382, volume V

Crowpoison, plate 147, volume II
 Cucumbertree, plate 231, volume III
 Cucumbertree, Yellow, plate 330, volume V
 Curly Clematis, plate 150, volume II
 Currant, Prickly, (flower), plate 66, volume I
 Currant, Prickly, (fruit), plate 67, volume I
 Cut Toothwort, plate 249, volume IV
Cypripedium acaule Aiton, plate 58, volume I, and
 plate 327, volume V
Cypripedium arietinum Robert Brown, plate 216,
 volume III
Cypripedium montanum Douglas, plate 1, volume I
Cypripedium parviflorum Salisbury, plate 92,
 volume II
Cypripedium passerinum Richardson, plate 91,
 volume II
Cypripedium reginae Walter, plate 217, volume III
Cyrtopodium punctatum (Linnaeus) Lindley,
 plate 212, volume III
 Cyrtopodium, Spotted, plate 212, volume III
Cytherea bulbosa (Linnaeus) House, plate 105,
 volume II

Dawnrose, White, plate 387, volume V
 Deathcamas, plate 116, volume II
 Deerberry, plate 132, volume II
Delphinium depauperatum Nuttall, plate 384,
 volume V
Delphinium elongatum Rydberg, plate 27, volume I
Dendromecon rigidum Benthams, plate 392, volume V
Dentaria laciniata Muhlenberg, plate 249,
 volume IV
 Devilsclub, plate 32, volume I
 Dewberry, Red, plate 293, volume IV
Dionaea muscipula Ellis, plate 219, volume III
Diplacus longiflorus Nuttall, plate 200, volume III
Diplacus puniceus Nuttall, plate 315, volume IV
Dodecatheon meadia Linnaeus, plate 49, volume I
Dodecatheon pauciflorum (Durand) Greene,
 plate 276, volume IV
 Dogwood, Flowering, (flower), plate 321,
 volume V
 Dogwood, Flowering, (fruit), plate 322,
 volume V
 Dogwood, Red-osier, plate 38, volume I

Double Bladderpod, (flower), plate 167, volume III
 Double Bladderpod, (fruit), plate 168, volume III
 Douglas-fir, plate 270, volume IV
 Douglas Honeysuckle, (flower), plate 81,
 volume II
 Douglas Honeysuckle, (fruit), plate 82, volume II
 Downy Pinxterbloom, plate 232, volume III
 Drummond Pitcherplant, plate 329, volume V
 Drummond Willow, plate 380, volume V
 Dryad, White, (flower), plate 176, volume III
 Dryad, White, (fruit), plate 177, volume III
 Dryad, Yellow, (flower), plate 364, volume V
 Dryad, Yellow, (fruit), plate 365, volume V
Dryas drummondii Richardson, (flower), plate 364,
 volume V
Dryas drummondii Richardson, (fruit), plate 365,
 volume V
Dryas octopetala Linnaeus, (flower), plate 176,
 volume III
Dryas octopetala Linnaeus, (fruit), plate 177,
 volume III
 Dutchman's-breeches, plate 247, volume IV

Echinocereus lloydii Britton and Rose, plate 155,
 volume II
Echinocereus viridiflorus Engelmänn, plate 308,
 volume IV
Echinopanax horridum (Smith) Decaisne and
 Planchon, plate 32, volume I
Elaeagnus commutata Bernhardt, (flower), plate 70,
 volume I
Elaeagnus commutata Bernhardt, (fruit), plate 71,
 volume I
 Elder, Scarlet, plate 260, volume IV
 Elephanthead, plate 373, volume V
 Elkslip, plate 287, volume IV
Empetrum nigrum Linnaeus, plate 382, volume V
 Engelmann Spruce, plate 378, volume V
Epidendrum nocturnum Jaquin, plate 337, volume V
 Epidendrum, Tampa, plate 152, volume II
Epidendrum tampense Lindley, plate 152, volume II
 Epidendrum, White, plate 337, volume V
Epigaea repens Linnaeus, plate 126, volume II
Epilobium angustifolium Linnaeus, plate 301,
 volume IV

Epilobium latifolium Linnaeus, plate 370, volume V
Epilobium luteum Pursh, plate 300, volume IV
Erigeron aureus Greene, plate 280, volume IV
Erigeron caespitosus Nuttall, plate 61, volume I
Erigeron salsuginosus (Richardson) Gray, plate 290,
 volume IV
Erigeron speciosus De Candolle, plate 165,
 volume III
Erigeron unalaschensis (De Candolle) Rydberg,
 plate 376, volume V
Eriophorum angustifolium Roth, plate 312,
 volume IV
Eriophorum chamissonis Meyer, plate 12, volume I
Eritrichum elongatum (Rydberg) W. F. Wight,
 plate 359, volume V
Erythronium albidum Nuttall, plate 15, volume I
Erythronium americanum Ker, plate 339, volume V
Erythronium grandiflorum Pursh, plate 68, volume I
Erythronium montanum Watson, plate 202,
 volume III
Eschscholtzia mexicana Greene, plate 393, volume V
 Evening-primrose, plate 388, volume V
 Everlasting, Pearl, plate 289, volume IV

False Locoweed, plate 3, volume I
 Fernleaf, Alpine, plate 121, volume II
 Field Violet, plate 211, volume III
 Fir, Alpine, plate 18, volume I
 Fir, Douglas-, plate 270, volume IV
 Fire Pentstemon, plate 394, volume V
 Fireweed, plate 301, volume IV
 Fivefinger, Grayleaf, plate 296, volume IV
 Flame Azalea, plate 43, volume I
 Fleabane, Alaska, plate 290, volume IV
 Fleabane, Aleutian, plate 376, volume V
 Fleabane, Golden, plate 280, volume IV
 Fleabane, Meadow, plate 165, volume III
 Fleabane, Pink, plate 61, volume I
 Flowering Dogwood, (flower), plate 321,
 volume V
 Flowering Dogwood, (fruit), plate 322, volume V
 Flytrap, Venus, plate 219, volume III
 Forest Anemone, plate 306, volume IV
 Forget-me-not, Alpine, plate 352, volume V
 Forget-me-not, Moss, plate 359, volume V

Fouquieria splendens Engelmann, plate 396,
volume v
Foxglove Pentstemon, plate 209, volume III
Fragaria glauca (Watson) Rydberg, plate 362,
volume v
Franklinia, plate 244, volume IV
Franklinia alatamaha Marshall, plate 244,
volume IV
Fremontia, Mexican, plate 206, volume III
Fremontodendron mexicanum Davidson, plate 206,
volume III
Fringed Gentian, plate 336, volume v
Fringed Parnassia, plate 343, volume v
Fringed Polygala, plate 135, volume II
Fringe-orchid, Large Purple, plate 243, volume IV
Fringe-orchid, Ragged, plate 215, volume III
Fringeorchid, Yellow, plate 340, volume v
Fringetree, plate 140, volume II
Fumeroot, Pink, plate 5, volume I

Gaillardia aristata Pursh, plate 354, volume v
Gaillardia, Perennial, plate 354, volume v
Galium boreale Linnaeus, plate 63, volume I
Gaylussacia brachycera (Michaux) Gray, plate 229,
volume III
Gelsemium sempervirens (Linnaeus) Persoon,
plate 220, volume III
Gentian, Bluegreen, plate 108, volume II
Gentian, Bottle, plate 161, volume III
Gentian, Fringed, plate 336, volume v
Gentian, Ladder, plate 294, volume IV
Gentian, Moss, plate 178, volume III
Gentian, Pinebarren, plate 8, volume I
Gentian, Riverbank, plate 87, volume II
Gentian, Ruff, plate 318, volume IV
Gentiana acuta Michaux, plate 294, volume IV
Gentiana affinis Grisebach, plate 87, volume II
Gentiana calycosa Grisebach, plate 318, volume IV
Gentiana crinita Froelich, plate 336, volume v
Gentiana glauca Pallas, plate 108, volume II
Gentiana porphyrio Gmelin, plate 8, volume I
Gentiana prostrata Haenke, plate 178, volume III
Gentiana saponaria Linnaeus, plate 161, volume III
Geranium viscosissimum Fischer and Meyer,
plate 307, volume IV

Ghostpipe, plate 156, volume II
Giant Arborvitae, plate 187, volume III
Giant Trillium, plate 299, volume IV
Glacierlily, plate 68, volume I
Globe Anemone, plate 291, volume IV
Globeflower, White, plate 353, volume v
Globemallow, Orange-eye, plate 311, volume IV
Globe-mallow, Scarlet, plate 398, volume v
Goldenbowl Mariposa, plate 314, volume IV
Goldenclub, plate 222, volume III
Golden Fleabane, plate 280, volume IV
Goldenpea, plate 297, volume IV
Goldenrod, Sidesaddle, plate 183, volume III
Golden Sedge, plate 281, volume IV
Goldenstar, plate 145, volume II
Grassleaf Agoseris, plate 88, volume II
Grass-pink Orchid, plate 131, volume II
Grayleaf Fivefinger, plate 296, volume IV
Gray Phacelia, plate 278, volume IV
Gray Pussytoes, plate 104, volume II
Green Bearcabbage, plate 174, volume III
Greendragon, plate 22, volume I
Green Pyrola, plate 113, volume II
Green Strawberry-cactus, plate 308, volume IV
Groundsel, Arrowleaf, plate 385, volume v
Groundsel, Mourning, plate 275, volume IV
Groundsel, Rayless, plate 93, volume II
Grouse Whortleberry, (flower), plate 169,
volume III
Grouse Whortleberry, (fruit), plate 170, volume III

Habenaria ciliaris (Linnaeus) Robert Brown,
plate 340, volume v
Habenaria grandiflora (Bigelow) Torrey, plate 243,
volume IV
Habenaria lacera (Michaux) Loddiges, plate 215,
volume III
Habenaria obtusata (Pursh) Richardson, plate 76,
volume I
Hamamelis virginiana Linnaeus, plate 323, volume v
Harebell, plate 369, volume v
Harebell, Alpine, plate 368, volume v
Hazel Alder, plate 16, volume I
Hedysarum mackenzii Richardson, plate 97,
volume II

Heliotrope Valerian, plate 366, volume v
 Hemlock, Mountain, plate 267, volume iv
 Hemlock, Western, plate 268, volume iv
 Hepatica, plate 125, volume ii
Hepatica americana Ker, plate 125, volume ii
 Highbush Blackberry, plate 146, volume ii
 Highbush Blueberry, plate 228, volume iii
 Holly, American, plate 266, volume iv
 Hollygrape, Creeping, plate 30, volume i
 Honeysuckle, Bearberry, plate 60, volume i
 Honeysuckle, Douglas, (flower), plate 81,
 volume ii
 Honeysuckle, Douglas, (fruit), plate 82,
 volume ii
 Honeysuckle, Trumpet, plate 46, volume i
 Hooded Ladies-tresses, plate 356, volume v
 Hooded Pitcherplant, plate 251, volume iv
Hookera pauciflora (Torrey) Tidestrom, plate 389,
 volume v
Houstonia caerulea Linnaeus, plate 59, volume i
 Huckleberry, Box, plate 229, volume iii
Hymenocallis rotata (Ker) Herbert, plate 154,
 volume ii
Hypopitys americana (De Candolle) Small,
 plate 157, volume ii
Hypopitys lanuginosa (Michaux) Nuttall,
 plate 213, volume iii

Ibidium cernuum (Linnaeus) House, plate 4,
 volume i
Ibidium gracile (Bigelow) House, plate 4, volume i
Ibidium strictum (Rydberg) House, plate 356,
 volume v
Ilex opaca Aiton, plate 266, volume iv
Ilex verticillata (Linnaeus) Gray, plate 54,
 volume i
Ilex vomitoria Aiton, plate 226, volume iii
 Indianpipe, plate 262, volume iv
 Iris, Blueflag, plate 332, volume v
 Iris, Crested, plate 33, volume i
Iris cristata Aiton, plate 33, volume i
Iris verna Linnaeus, plate 13, volume i
 Iris, Vernal, plate 13, volume i
Iris versicolor Linnaeus, plate 332, volume v
 Ivory Baneberry, plate 73, volume i

Jack-in-the-pulpit, plate 331, volume v
Jeffersonia diphylla (Linnaeus) Persoon, plate 72,
 volume i
 Jessamine, Carolina, plate 220, volume iii
 Juniper, Creeping, plate 379, volume v
 Juniper, Mountain, plate 86, volume ii
Juniperus horizontalis Moench, plate 379, volume v
Juniperus sibirica Burgsdorf, plate 86, volume ii

Kalmia angustifolia Linnaeus, plate 326, volume v
 Kalmia, Bog, plate 133, volume ii
Kalmia latifolia Linnaeus, plate 221, volume iii
Kalmia microphylla (Hooker) Heller, plate 284,
 volume iv
Kalmia polifolia Wangenheim, plate 133, volume ii
 Kalmia, Rocky Mountain, plate 284, volume iv
Kraunbia frutescens (Linnaeus) Greene, plate 149,
 volume ii
 Kruhsea, (flower), plate 56, volume i
 Kruhsea, (fruit), plate 56a, volume i
Kruhsea streptopoides (Ledebour) Kearney,
 (flower), plate 56, volume i
Kruhsea streptopoides (Ledebour) Kearney, (fruit),
 plate 56a, volume i

Labrador-tea, plate 62, volume i
 Ladder Gentian, plate 294, volume iv
 Ladies-tresses, Hooded, plate 356, volume v
 Ladies-tresses, Nodding, plate 4, volume i
 Ladies-tresses, Slender, plate 4, volume i
 Ladyslipper, Mountain, plate 1, volume i
 Ladyslipper, Northern, plate 91, volume ii
 Ladyslipper, Pale, plate 58, volume i
 Ladyslipper, Pink, plate 327, volume v
 Ladyslipper, Ramshead, plate 216, volume iii
 Ladyslipper, Showy, plate 217, volume iii
 Ladyslipper, Small Yellow, plate 92, volume ii
 Lake Louise Arnica, plate 10, volume i
 Lambkill, plate 326, volume v
 Lanceleaf Paintbrush, plate 102, volume ii
Lappula diffusa (Lehmann) Greene, plate 351,
 volume v
 Larch, Lyall, plate 381, volume v
 Larch, Western, plate 269, volume iv
 Large Purple Fringe-orchid, plate 243, volume iv

Larix lyallii Parlatores, plate 381, volume v
Larix occidentalis Nuttall, plate 269, volume iv
 Larkspur, Slim, plate 384, volume v
 Larkspur, Tall, plate 27, volume i
Lathyrus ochroleucus Hooker, plate 85, volume ii
 Laurel, Mountain-, plate 221, volume iii
 Leatherflower, plate 41, volume i
Ledum groenlandicum Oeder, plate 62, volume i
 Lemon Columbine, plate 201, volume iii
Lepargyrea canadensis (Linnaeus) Greene, plate 115,
 volume ii
 Lewis Monkeyflower, plate 374, volume v
 Lilac Mariposa, plate 310, volume iv
Lilium canadense Linnaeus, plate 148, volume ii
Lilium columbianum Hanson, plate 316, volume iv
Lilium montanum Nelson, plate 11, volume i
Lilium superbum Linnaeus, plate 256, volume iv
 Lily, Atamasco-, plate 255, volume iv
 Lily, Avalanche, plate 202, volume iii
 Lily, Canada, plate 148, volume ii
 Lily, Columbia, plate 316, volume iv
 Lily, Cluster-, plate 389, volume iv
 Lily, Glacier, plate 68, volume i
 Lily, Red, plate 11, volume i
 Lily, Spider-, plate 154, volume ii
 Lily, Turkscap, plate 256, volume iv
 Lily Twayblade, plate 34, volume i
 Limber Pine, plate 188, volume iii
Limodorum tuberosum Linnaeus, plate 131,
 volume ii
Linnaea borealis americana (Forbes) Rehder,
 plate 196, volume iii
Liparis liliifolia (Linnaeus) Richard, plate 34,
 volume i
Liriodendron tulipifera Linnaeus, plate 45, volume i
 Lloyds Strawberry-cactus, plate 155, volume ii
 Lobelia, Brook, plate 192, volume iii
Lobelia cardinalis Linnaeus, plate 263, volume iv
Lobelia kalmii Linnaeus, plate 192, volume iii
 Loblolly Pine, plate 335, volume v
 Locoweed, False, plate 3, volume i
 Lodgepole Pine, plate 101, volume ii
 Longleaf Pine, plate 139, volume ii
Lonicera glaucescens Rydberg, (flower), plate 81,
 volume ii

Lonicera glaucescens Rydberg, (fruit), plate 82,
 volume ii
Lonicera involucrata (Richardson) Banks, plate 60,
 volume i
Lonicera sempervirens Linnaeus, plate 46,
 volume i
 Low Whortleberry, plate 179, volume iii
 Lupine, Sun-dial, plate 6, volume i
Lupinus perennis Linnaeus, plate 6, volume i
 Lyall Larch, plate 381, volume v
Lychnis apetala Linnaeus, plate 279, volume iv
Lygodesmia juncea (Pursh) Don, plate 9, volume i

M*agnolia acuminata* Linnaeus, plate 231,
 volume iii
Magnolia cordata Michaux, plate 330, volume v
Magnolia grandiflora Linnaeus, (flower), plate 24,
 volume i
Magnolia grandiflora Linnaeus, (fruit), plate 24a,
 volume i
 Magnolia, Southern, (flower), plate 24, volume i
 Magnolia, Southern, (fruit), plate 24a, volume i
Magnolia virginiana Linnaeus, plate 325, volume v
Malus coronaria (Linnaeus) Miller, plate 51,
 volume i
 Maple, Carolina, plate 138, volume ii
 Maple, Red, plate 137, volume ii
 Mariposa, Catalina, plate 205, volume iii
 Mariposa, Goldenbowl, plate 314, volume iv
 Mariposa, Lilac, plate 310, volume iv
 Mariposa, Sagebrush, plate 175, volume iii
 Mariposa, San Diego, plate 199, volume iii
 Mariposa, Scarlet, plate 391, volume v
 Marshmarigold, plate 208, volume iii
 Mayapple, plate 143, volume ii
 Maypop, plate 324, volume v
 Meadow Fleabane, plate 165, volume iii
Menyanthes trifoliata Linnaeus, plate 225,
 volume iii
Menziesia glabella Gray, plate 298, volume iv
 Menziesia, Western, plate 298, volume iv
 Menzies Pentstemon, plate 319, volume iv
 Merrybells, Wood, plate 144, volume ii
Mertensia paniculata (Aiton) Don, plate 173,
 volume iii

Mertensia virginica (Linnaeus) De Candolle,
 plate 20, volume I
 Mexican Fremontia, plate 206, volume III
 Mexican Poppy, plate 393, volume V
 Milkvetch, Alpine, plate 295, volume IV
 Milkvetch, Burgess, plate 21, volume I
 Milkweed, Showy, plate 90, volume II
Mimulus caespitosus Greene, plate 375, volume V
Mimulus cardinalis Douglas, plate 395, volume V
Mimulus guttatus Don, plate 313, volume IV
Mimulus lewisii Pursh, plate 374, volume V
 Missouri Pricklypear, plate 35, volume I
 Mistletoe, American, plate 265, volume IV
 Mistmaiden, plate 98, volume II
Mitchella repens Linnaeus, plate 207, volume III
Monarda punctata Linnaeus, plate 233, volume III
Moneses uniflora (Linnaeus) Gray, plate 273,
 volume IV
 Monkeyflower, Alpine, plate 375, volume V
 Monkeyflower, Buff, plate 200, volume III
 Monkeyflower, Cardinal, plate 395, volume V
 Monkeyflower, Lewis, plate 374, volume V
 Monkeyflower, Red, plate 315, volume IV
 Monkeyflower, Western, plate 313, volume IV
Monotropa uniflora Linnaeus, plate 262, volume IV
 Moss Champion, plate 367, volume V
 Moss Forget-me-not, plate 359, volume V
 Moss Gentian, plate 178, volume III
 Mountain-ash, Western, plate 162, volume III
 Mountain Cranberry, (flower), plate 193,
 volume III
 Mountain Cranberry, (fruit), plate 194,
 volume III
 Mountainheather, Pink, plate 74, volume I
 Mountain Hemlock, plate 267, volume IV
 Mountain Juniper, plate 86, volume II
 Mountain Ladyslipper, plate 1, volume I
 Mountain-laurel, plate 221, volume III
 Mourning Groundsel, plate 275, volume IV
Myosotis alpestris Schmidt, plate 352, volume V

Naiaid Springbeauty, plate 94, volume II
 Nodding Champion, plate 279, volume IV
 Nodding Ladies-tresses, plate 4, volume I
 Nodding Onion, plate 304, volume IV

Northern Anemone, plate 371, volume V
 Northern Bedstraw, plate 63, volume I
 Northern Butterbur, plate 189, volume III
 Northern Butterwort, plate 198, volume III
 Northern Ladyslipper, plate 91, volume II
Nymphaea advena Solander, plate 159, volume II

Oconee-bells, plate 19, volume I
 Ocotillo, plate 396, volume V
 One-leaf Bog-orchid, plate 76, volume I
 Onion, Nodding, plate 304, volume IV
 Onion, Siberian, plate 383, volume V
Ophrys nephrophylla Rydberg, plate 109, volume II
Opuntia polyacantha Haworth, plate 35, volume I
 Orange-eye Globemallow, plate 311, volume IV
 Orange Polygala, plate 257, volume IV
 Orchid, Grass-pink, plate 131, volume II
 Orchid, Rosebud, plate 242, volume IV
Orchis rotundifolia Pursh, plate 65, volume I
 Orchis, Roundleaf, plate 65, volume I
 Orchis, Showy, plate 241, volume IV
Orchis spectabilis Linnaeus, plate 241, volume IV
Orontium aquaticum Linnaeus, plate 222, volume III
Orthocarpus tenuifolius Benthham, plate 119,
 volume II
 Owl-clover, plate 119, volume II
Oxycoccus palustris Persoon, plate 180, volume III
 Oxytrope, Showy, plate 120, volume II
Oxytropis gracilis (Nelson) Jones, plate 3, volume I
Oxytropis podocarpa Gray, (flower), plate 282,
 volume IV
Oxytropis podocarpa Gray, (fruit), plate 283,
 volume IV
Oxytropis splendens Douglas, plate 120, volume II

Pachyloplus *hirsutus* Rydberg, plate 388, volume V
Pachyloplus marginatus (Nuttall) Rydberg,
 plate 387, volume V
 Paintbrush, Alberta, plate 372, volume V
 Paintbrush, Lanceleaf, plate 102, volume II
 Paintbrush, Rose, plate 48, volume I
 Painted Trillium, plate 134, volume II
 Pale Ladyslipper, plate 58, volume I
 Pale Pinesap, plate 157, volume II
 Pale Strawberry, plate 362, volume V

- Papaw, plate 328, volume v
Parnassia fimbriata Konig, plate 343, volume v
Parnassia, Fringed, plate 343, volume v
Parrot Pitcherplant, plate 236, volume iii
Partridgeberry, plate 207, volume iii
Pasqueflower, American, (flower), plate 95, volume ii
Pasqueflower, American, (fruit), plate 96, volume ii
Passiflora incarnata Linnaeus, plate 324, volume v
Pearl Everlasting, plate 289, volume iv
Peatpink, plate 248, volume iv
Pea, White, plate 85, volume ii
Pedicularis bracteosa Bentham, plate 258, volume iv
Pedicularis contorta Bentham, plate 121, volume ii
Pedicularis groenlandica Retz, plate 373, volume v
Pentstemon confertus Douglas, plate 357, volume v
Pentstemon digitalis (Sweet) Nuttall, plate 209, volume iii
Pentstemon eatonii Gray, plate 394, volume v
Pentstemon erianthera Pursh, plate 50, volume i
Pentstemon, Fire, plate 394, volume v
Pentstemon, Foxglove, plate 209, volume iii
Pentstemon lyallii Gray, plate 346, volume v
Pentstemon, Menzies, plate 319, volume iv
Pentstemon menziesii Hooker, plate 319, volume iv
Pentstemon, Prairie, plate 50, volume i
Pentstemon, Purple, plate 346, volume v
Pentstemon, Wright, plate 386, volume v
Pentstemon wrightii Hooker, plate 386, volume v
Pentstemon, Yellow, plate 357, volume v
Peramium decipiens (Hooker) Piper, plate 350, volume v
Perennial Gaillardia, plate 354, volume v
Petalostemon purpureum (Ventenat) Rydberg, plate 320, volume iv
Petasites hyperboreus Rydberg, plate 189, volume iii
Phacelia, Gray, plate 278, volume iv
Phacelia linearis (Pursh) Holzinger, plate 197, volume iii
Phacelia, Sand, plate 197, volume iii
Phacelia sericea (Graham) Gray, plate 278, volume iv
Phlox, Blue, plate 245, volume iv
Phlox divaricata Linnaeus, plate 245, volume iv
Phoradendron flavescens (Pursh) Nuttall, plate 265, volume iv
Phyllodoce empetriformis (Smith) Don, plate 74, volume i
Physaria didymocarpa (Hooker) Gray, (flower), plate 167, volume iii
Physaria didymocarpa (Hooker) Gray, (fruit), plate 168, volume iii
Picea engelmanni (Parry) Engelm., plate 378, volume v
Pickerelweed, plate 29, volume i
Pinebarren Gentian, plate 8, volume i
Pineland Aster, plate 160, volume ii
Pineland Blueberry, plate 230, volume iii
Pine, Limber, plate 188, volume iii
Pine, Loblolly, plate 335, volume v
Pine, Lodgepole, plate 101, volume ii
Pine, Longleaf, plate 139, volume ii
Pinesap, Pale, plate 157, volume ii
Pinesap, Red, plate 213, volume iii
Pine, Whitebark, plate 377, volume v
Pinguicula elatior Michaux, plate 235, volume iii
Pinguicula vulgaris Linnaeus, plate 198, volume iii
Pink Centaurium, plate 303, volume iv
Pink Fleabane, plate 61, volume i
Pink Fumeroot, plate 5, volume i
Pink Ladyslipper, plate 327, volume v
Pink Mountainheather, plate 74, volume i
Pink Pussytoes, plate 286, volume iv
Pinkshell Azalea, plate 253, volume iv
Pink Twistedstalk, plate 83, volume ii
Pinus albicaulis Engelm., plate 377, volume v
Pinus contorta murrayana (Balfour) Engelm., plate 101, volume ii
Pinus flexilis James, plate 188, volume iii
Pinus palustris Miller, plate 139, volume ii
Pinus taeda Linnaeus, plate 335, volume v
Pinxterbloom, plate 128, volume ii
Pinxterbloom, Downy, plate 232, volume iii
Pipsissewa, Western, plate 360, volume v
Pitcherplant, plate 52, volume i
Pitcherplant, California, plate 390, volume v
Pitcherplant, Catesby, plate 400, volume v
Pitcherplant, Drummond, plate 329, volume v
Pitcherplant, Hooded, plate 251, volume iv

Pitcherplant, Parrot, plate 236, volume III
 Pitcherplant, Sweet, plate 250, volume IV
 Plum, Chickasaw, plate 130, volume II
 Plume Anemone, (flower), plate 163, volume III
 Plume Anemone, (fruit), plate 164, volume III
Podophyllum peltatum Linnaeus, plate 143, volume II
Pogonia divaricata (Linnaeus) Robert Brown,
 plate 242, volume IV
Pogonia ophioglossoides (Linnaeus) Ker, plate 218,
 volume III
 Pogonia, Rose, plate 218, volume III
 Pointvetch, Alpine, (flower), plate 282, volume IV
 Pointvetch, Alpine, (fruit), plate 283, volume IV
Polycodium stamineum (Linnaeus) Greene,
 plate 132, volume II
 Polygala, Fringed, plate 135, volume II
Polygala lutea Linnaeus, plate 257, volume IV
 Polygala, Orange, plate 257, volume IV
Polygala paucifolia Willdenow, plate 135,
 volume II
Pontederia cordata Linnaeus, plate 29, volume I
 Poppy, Mexican, plate 393, volume V
Porteranthus trifoliatius (Linnaeus) Britton,
 plate 252, volume IV
Potentilla fruticosa Linnaeus, plate 77, volume I
Potentilla glaucophylla Lehmann, plate 296,
 volume IV
Potentilla uniflora Ledebour, plate 182, volume III
 Prairie Aster, plate 118, volume II
 Prairieclover, Purple, plate 320, volume IV
 Prairie Pentstemon, plate 50, volume I
 Prairie-smoke, plate 53, volume I
 Prairie Thistle, plate 309, volume IV
 Prickly Currant, (flower), plate 66, volume I
 Prickly Currant, (fruit), plate 67, volume I
 Pricklypear, Missouri, plate 35, volume I
 Primrose, Alberta, plate 274, volume IV
 Primrose, Evening, plate 388, volume V
Primula macalliana Wiegand, plate 274, volume IV
Prunus angustifolia Marshall, plate 130, volume II
Pseudotsuga mucronata (Rafinesque) Sudworth,
 plate 270, volume IV
 Ptarmiganberry, plate 355, volume V
Pulsatilla ludoviciana (Nuttall) Heller, (flower),
 plate 95, volume II

Pulsatilla ludoviciana (Nuttall) Heller, (fruit),
 plate 96, volume II
Pulsatilla occidentalis (Watson) Freyn, (flower),
 plate 163, volume III
Pulsatilla occidentalis (Watson) Freyn, (fruit),
 plate 164, volume III
 Purple Butterwort, plate 235, volume III
 Purple Mountain Violet, plate 181, volume III
 Purple Pentstemon, plate 346, volume V
 Purple Prairieclover, plate 320, volume IV
 Purple Saxifrage, plate 42, volume I
 Pussy-ears, plate 2, volume I
 Pussytoes, Buff, plate 171, volume III
 Pussytoes, Gray, plate 104, volume II
 Pussytoes, Pink, plate 286, volume IV
 Pussy Willow, plate 122, volume II
 Pygmy Androsace, plate 185, volume III
Pyrola chlorantha Swartz, plate 113, volume II
 Pyrola, Green, plate 113, volume II
Pyrola minor Linnaeus, plate 172, volume III
Pyrola secunda Linnaeus, plate 285, volume IV
 Pyrola, Sidebells, plate 285, volume IV
 Pyrola, Small, plate 172, volume III
Pyxidanthra barbulata Michaux, plate 124,
 volume II
 Pyxie, plate 124, volume II

Quakerladies, plate 59, volume I
Quamasia quamash (Pursh) Coville, plate 358,
 volume V
 Queencup, (flower), plate 203, volume III
 Queencup, (fruit), plate 204, volume III
 Quill-leaf Tillandsia, plate 399, volume V

Rabbitbean, plate 44, volume I
 Ragged Fringe-orchid, plate 215, volume III
 Ramshead Ladyslipper, plate 216, volume III
Ranunculus suksdorfii Gray, plate 114, volume II
 Raspberry, Whiteflowering, plate 341, volume V
 Rattlesnakeplantain, Western, plate 350, volume V
 Rayless Groundsel, plate 93, volume II
 Red Buckeye, plate 47, volume I
 Redbud, plate 26, volume I
 Red Chokeberry, (flower), plate 31, volume I
 Red Chokeberry, (fruit), plate 31a, volume I

Red Comandra, plate 361, volume v
 Red Dewberry, plate 293, volume iv
 Red Helmet, plate 258, volume iv
 Red Lily, plate 11, volume i
 Red Maple, plate 137, volume ii
 Red Monkeyflower, plate 315, volume iv
 Red-osier Dogwood, plate 38, volume i
 Red Pinesap, plate 213, volume iii
 Redstem Saxifrage, plate 363, volume v
 Red Trillium, plate 239, volume iii
 Red Willowweed, plate 370, volume v
Rhododendron albiflorum Hooker, plate 305, volume iv
Rhododendron maximum Linnaeus, plate 254, volume iv
 Rhododendron, Rocky Mountain, plate 305, volume iv
 Rhododendron, Rosebay, plate 254, volume iv
 Rhodora, plate 28, volume i
Rhodora canadensis Linnaeus, plate 28, volume i
Ribes lacustre (Persoon) Poirer, (flower), plate 66, volume i
Ribes lacustre (Persoon) Poirer, (fruit), plate 67, volume i
 Riverbank Gentian, plate 87, volume ii
 Rock Willow, plate 106, volume ii
 Rock Wormwood, plate 288, volume iv
 Rocky Mountain Cassiope, plate 75, volume i
 Rocky Mountain Kalmia, plate 284, volume iv
 Rocky Mountain Rhododendron, plate 305, volume iv
 Rocky Mountain Twayblade, plate 109, volume ii
Romanzoffia sitchensis Bongard, plate 98, volume ii
Rosa bourgeauiana Crepin, (flower), plate 344, volume v
Rosa bourgeauiana Crepin, (fruit), plate 345, volume v
 Rosebay Rhododendron, plate 254, volume iv
 Rose, Bourgeau, (flower), plate 344, volume v
 Rose, Bourgeau, (fruit), plate 345, volume v
 Rosebud Orchid, plate 242, volume iv
 Rosegentian, Saltmarsh, plate 342, volume v
 Rose Paintbrush, plate 48, volume i
 Rose Pogonia, plate 218, volume iii
 Rosette Cinquefoil, plate 182, volume iii
 Roundleaf Orchis, plate 65, volume i

Rubus argutus Link, plate 146, volume ii
Rubus parviflorus Nuttall, plate 341, volume v
Rubus pedatus Smith, plate 293, volume iv
 Ruff Gentian, plate 318, volume iv

Sabbatia stellaris Pursh, plate 342, volume v
 Sagebrush Mariposa, plate 175, volume iii
Sagittaria cuneata Sheldon, plate 158, volume ii
Salix discolor Muhlenberg, plate 122, volume ii
Salix drummondiana Barratt, plate 380, volume v
Salix nivalis Hooker, plate 277, volume iv
Salix petrophila Rydberg, plate 106, volume ii
 Saltmarsh Rosegentian, plate 342, volume v
Sambucus pubens Michaux, plate 260, volume iv
 San Diego Mariposa, plate 199, volume iii
 Sand Phacelia, plate 197, volume iii
Sanguinaria canadensis Linnaeus, plate 123, volume ii
Sarracenia catesbaei Elliott, plate 400, volume v
Sarracenia drummondii Croom, plate 329, volume v
Sarracenia flava Linnaeus, plate 25, volume i
Sarracenia minor Walter, plate 251, volume iv
Sarracenia psittacina Michaux, plate 236, volume iii
Sarracenia purpurea Linnaeus, plate 52, volume i
Sarracenia rubra Walter, plate 250, volume iv
 Saskatoon, plate 117, volume ii
 Saussurea, plate 191, volume iii
Saussurea densa (Hooker) Rydberg, plate 191, volume iii
Saxifraga bronchialis Linnaeus, plate 110, volume ii
Saxifraga caespitosa Linnaeus, plate 184, volume iii
Saxifraga lyallii Engler, plate 363, volume v
Saxifraga oppositifolia Linnaeus, plate 42, volume i
 Saxifrage, Purple, plate 42, volume i
 Saxifrage, Redstem, plate 363, volume v
 Saxifrage, Spotted, plate 110, volume ii
 Saxifrage, Tufted, plate 184, volume iii
 Scarlet Elder, plate 260, volume iv
 Scarlet Globe-mallow, plate 398, volume v
 Scarlet Mariposa, plate 391, volume v
Scutellaria serrata Andrews, plate 237, volume iii
 Sedge, Golden, plate 281, volume iv
Senecio lugens Richardson, plate 275, volume iv
Senecio paniculatus Pursh, plate 93, volume ii
Senecio triangularis Hooker, plate 385, volume v

Shootingstar, plate 49, volume 1
 Shootingstar, Slender, plate 276, volume 1v
Shortia galacifolia Torrey and Gray, plate 19,
 volume 1
 Shortspur Columbine, plate 292, volume 1v
 Showy Ladyslipper, plate 217, volume 111
 Showy Milkweed, plate 90, volume 11
 Showy Orchis, plate 241, volume 1v
 Showy Oxytrope, plate 120, volume 11
 Siberian Onion, plate 383, volume v
 Sidebells Pyrola, plate 285, volume 1v
 Sidesaddle Goldenrod, plate 183, volume 111
Sieversia ciliata (Pursh) Don, plate 53,
 volume 1
Silene acaulis Linnaeus, plate 367, volume v
Silene caroliniana Walter, plate 248, volume 1v
 Silverberry, (flower), plate 70, volume 1
 Silverberry, (fruit), plate 71, volume 1
Sisyrinchium angustifolium Miller, plate 238,
 volume 111
 Skeletonflower, plate 9, volume 1
 Skullcap, Wood, plate 237, volume 111
 Skunkcabbage, plate 37, volume 1
 Slender Agoseris, plate 89, volume 11
 Slender Ladies-tresses, plate 4, volume 1
 Slender Shootingstar, plate 276, volume 1v
 Slim Larkspur, plate 384, volume v
 Small Cranberry, plate 180, volume 111
 Small Pyrola, plate 172, volume 111
 Small Yellow Ladyslipper, plate 92, volume 11
 Smooth Yellow Violet, plate 224, volume 111
 Snow Trillium, plate 240, volume 111
 Snow Willow, plate 277, volume 1v
Solidago ciliosa Greene, plate 183, volume 111
 Solomonplume, Star, plate 166, volume 111
Sorbus sambucifolia (Chamisso and Schlechtendal)
 Roemer, plate 162, volume 111
 Southern Coast Violet, plate 142, volume 11
 Southern Magnolia, (flower), plate 24, volume 1
 Southern Magnolia, (fruit), plate 24a, volume 1
Spathyema foetida (Linnaeus) Rafinesque, plate 37,
 volume 1
 Spatterdock, plate 159, volume 11
Sphaeralcea davidsonii Robinson, plate 311,
 volume 1v

Sphaeralcea grossulariaefolia (Hooker and Arnott)
 Rydberg, plate 398, volume v
 Spiderlily, plate 154, volume 11
 Spiderwort, Virginia, plate 40, volume 1
 Spotted Beebalm, plate 233, volume 111
 Spotted Cyrtopodium, plate 212, volume 111
 Spotted Saxifrage, plate 110, volume 11
 Springbeauty, Naiad, plate 94, volume 11
 Springbeauty, Virginia, plate 234, volume 111
 Spruce, Engelmann, plate 378, volume v
 Squawroot, plate 214, volume 111
 Squirrelcorn, plate 136, volume 11
 Star Solomonplume, plate 166, volume 111
Stenanthium occidentale Gray, plate 64, volume 1
Stewartia malachodendron Linnaeus, plate 333,
 volume v
 Stewartia, Virginia, plate 333, volume v
 Strawberry-blite, plate 349, volume v
 Strawberry-cactus, Green, plate 308, volume 1v
 Strawberry-cactus, Lloyds, plate 155, volume 11
 Strawberry, Pale, plate 362, volume v
Streptopus amplexifolius (Linnaeus) De Candolle,
 plate 84, volume 11
Streptopus curvipes Vail, plate 83, volume 11
 Sun-dial Lupine, plate 6, volume 1
 Sweet Androsace, plate 107, volume 11
 Sweet Azalea, plate 55, volume 1
 Sweetbay, plate 325, volume v
 Sweet Crab, Wild, plate 51, volume 1
 Sweet Pitcherplant, plate 250, volume 1v
 Sweetvetch, plate 97, volume 11
Synedemon thalictroides (Linnaeus) Hoffmannsegg,
 plate 14, volume 1

Tall Larkspur, plate 27, volume 1
 Tampa Epidendrum, plate 152, volume 11
 Tarflower, plate 17, volume 1
 Tassel Cottongrass, plate 312, volume 1v
Thalesia uniflora (Linnaeus) Britton, plate 156,
 volume 11
Thermopsis rhombifolia (Nuttall) Richardson,
 plate 297, volume 1v
 Thistle, Prairie, plate 309, volume 1v
 Thistle, White, plate 103, volume 11
Thuja plicata Don, plate 187, volume 111

Tillandsia, plate 153, volume II
Tillandsia fasciculata Swartz, plates 153, volume II,
 and 399, volume V
Tillandsia, Quill-leaf, plate 399, volume V
 Toad Trillium, plate 23, volume I
 Toothwort, Cut, plate 249, volume IV
Tradescantia virginiana Linnaeus, plate 40, volume I
 Trailing-arbutus, plate 126, volume II
Trillium album (Michaux) Small, plate 334,
 volume V
Trillium chloropetalum (Torrey) Howell, plate 299,
 volume IV
Trillium erectum Linnaeus, plate 239, volume III
 Trillium, Giant, plate 299, volume IV
Trillium grandiflorum (Michaux) Salisbury,
 plate 240, volume III
 Trillium, Painted, plate 134, volume II
 Trillium, Red, plate 239, volume III
Trillium sessile Linnaeus, plate 23, volume I
 Trillium, Snow, plate 240, volume III
 Trillium, Toad, plate 23, volume I
Trillium undulatum Willdenow, plate 134,
 volume II
 Trillium, Wax, plate 334, volume V
Trollius albiflorus (Gray) Rydberg, plate 353,
 volume V
 Troutlily, White, plate 15, volume I
 Troutlily, Yellow, plate 339, volume V
 Trumpetcreeper, plate 227, volume III
 Trumpet Honeysuckle, plate 46, volume I
 Trumpetleaf, plate 25, volume I
Tsuga heterophylla (Rafinesque) Sargent, plate 268,
 volume IV
Tsuga mertensiana (Bongard) Sargent, plate 267,
 volume IV
 Tufted saxifrage, plate 184, volume III
 Tuliptree, plate 45, volume I
 Turkscap Lily, plate 256, volume IV
 Turtlehead, plate 259, volume IV
 Twayblade, Lily, plate 34, volume I
 Twayblade, Rocky Mountain, plate 109, volume II
 Twinflower, American, plate 196, volume III
 Twinleaf, plate 72, volume I
 Twistedstalk, Clasping, plate 84, volume II
 Twistedstalk, Pink, plate 83, volume II

U
Uvularia perfoliata Linnaeus, plate 144, volume II

Vaccinium caespitosum Michaux, plate 179,
 volume III
Vaccinium corymbosum Linnaeus, plate 228,
 volume III
Vaccinium membranaceum Douglas, plate 7,
 volume I
Vaccinium scoparium Leiberg, (flower), plate 169,
 volume III
Vaccinium scoparium Leiberg, (fruit), plate 170,
 volume III
Vaccinium tenellum Aiton, plate 230, volume III
Vaccinium vitisidaea minus Loddiges, (flower),
 plate 193, volume III
Vaccinium vitisidaea minus Loddiges, (fruit),
 plate 194, volume III
Vagnera stellata (Linnaeus) Morong, plate 166,
 volume III
Valeriana sitchensis Bongard, plate 366, volume V
 Valerian, Heliotrope, plate 366, volume V
 Venus Flytrap, plate 219, volume III
Veratrum viride Aiton, plate 174, volume III
 Vernal Iris, plate 13, volume I
 Vetch, American, plate 190, volume III
Viburnum pauciflorum Pylaie, plate 317,
 volume IV
Vicia americana Muhlenberg, plate 190,
 volume III
Viola adunca J. E. Smith, plate 181, volume III
Viola canadensis Linnaeus, plate 347, volume V
Viola eriocarpa Schweinitz, plate 224, volume III
Viola pedata Linnaeus, plate 39, volume I
Viola rafinesquii Greene, plate 211, volume III
Viola septemloba Le Conte, plate 142, volume II
 Violet, Birdsfoot, plate 39, volume I
 Violet, Canada, plate 347, volume V
 Violet, Field, plate 211, volume III
 Violet, Purple Mountain, plate 181, volume III
 Violet, Smooth Yellow, plate 224, volume III
 Violet, Southern Coast, plate 142, volume II
 Virginia Bluebells, plate 20, volume I
 Virginia Spiderwort, plate 40, volume I
 Virginia Springbeauty, plate 234, volume III
 Virginia Stewartia, plate 333, volume V

Waterlily, American, plate 223, volume III
 Wax Trillium, plate 334, volume V
 Western Bluebells, plate 173, volume III
 Western Cranesbill, plate 307, volume IV
 Western Green Alder, plate 186, volume III
 Western Hemlock, plate 268, volume IV
 Western Larch, plate 269, volume IV
 Western Menziesia, plate 298, volume IV
 Western Monkeyflower, plate 313, volume IV
 Western Mountain-ash, plate 162, volume III
 Western Pipsissewa, plate 360, volume V
 Western Rattlesnakeplantain, plate 350, volume V
 Western Yarrow, plate 151, volume II
 Whitebark Pine, plate 377, volume V
 White Dawnrose, plate 387, volume V
 White Dryad, (flower), plate 176, volume III
 White Dryad, (fruit), plate 177, volume III
 White Epidendrum, plate 337, volume V
 Whiteflowering Raspberry, plate 341, volume V
 White Globeflower, plate 353, volume V
 White Pea, plate 85, volume II
 White Thistle, plate 103, volume II
 White Troutlily, plate 15, volume I
 Whortleberry, Big, plate 7, volume I
 Whortleberry, Grouse, (flower), plate 169,
 volume III
 Whortleberry, Grouse, (fruit), plate 170,
 volume III
 Whortleberry, Low, plate 179, volume III
 Wild Calla, plate 129, volume II
 Wildginger, Canada, plate 127, volume II
 Wild Sweet Crab, plate 51, volume I
 Willow, Drummond, plate 380, volume V
 Willow, Pussy, plate 122, volume II
 Willow, Rock, plate 106, volume II

Willow, Snow, plate 277, volume IV
 Willowweed, Red, plate 370, volume V
 Willow-weed, Yellow, plate 300, volume IV
 Winterberry, plate 54, volume I
 Wistaria, American, plate 149, volume II
 Witch-hazel, plate 323, volume V
 Wood Betony: see *Red Helmet*
 Wood Merrybells, plate 144, volume II
 Woodnymph, plate 273, volume IV
 Wood Skullcap, plate 237, volume III
 Woolly Agoseris, plate 195, volume III
 Woolly Arnica, plate 348, volume V
 Wormwood, Rock, plate 288, volume IV
 Wright Pentstemon, plate 386, volume V

Xerophyllum tenax (Pursh) Nuttall, plate 302,
 volume IV

Yarrow, Western, plate 151, volume II
 Yaupon, plate 226, volume III
 Yellow Cucumbertree, plate 330, volume V
 Yellow Dryad, (flower), plate 364, volume V
 Yellow Dryad, (fruit), plate 365, volume V
 Yellow Fringeorchid, plate 340, volume V
 Yellow Pentstemon, plate 357, volume V
 Yellow Troutlily, plate 339, volume V
 Yellow Willow-weed, plate 300, volume IV
 Yucca, plate 397, volume V
Yucca baileyi Wootton and Standley, plate 397,
 volume V

Zenobia, plate 264, volume IV
Zenobia cassinifolia (Ventenat) Pollard, plate 264,
 volume IV
Zygadenus elegans Pursh, plate 116, volume II

































































































































































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